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THE PRENATAL CARE OF THE INFANT.

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While in America at present we are more engaged with the cost of living than the rate of dying, human life is not without value, and the time may come when the nation will be roused to the necessity of safeguarding the natural increase in its population.

Evidently such care must begin with childhood, especially at the period of adolescence in both sexes. Recent efforts to safeguard child labor, to inform boys and girls concerning the dangers of venereal disease, and to provide proper food and hygiene for youth, must be at the foundation of such endeavor. Whatever can be done to warn the young against alcoholism should also be of great value. The giving of a living wage which will permit early marriage, the abolition of tenements, and the substitution of model houses should aid in this endeavor.

That there is room for improvement in the hygiene of child-bearing may be inferred from the statistics given in the recent publication of the United States Government Mortality Statistics of 1908. These show that for each 100,000 of population 1.7 mothers die from the accidents of pregnancy, and 1.3 from the accidents of labor. Still-births are excluded from the vital statistics of this country at present, but of all deaths in 1908 out of a total of 691,574, one-fifth, or 136,432, were under one year of age. In a recent report of the National Conservation Commission, Prof. Irving Fisher of Yale University reported that of 100 premature births 40 were preventable; of 100 children dying of congenital debility 40 might have been saved; of 100 children dying of venereal diseases 70 might have been saved.

The movement to lessen infant mortality throughout the world is of comparatively recent origin. Only in the past decade has England lessened its infant mortality to an appreciable degree. The new science of eugenics has been given its beginning by the recent bequest of Sir Francis Galton of Cambridge. The writings of Ballantyne and his establishment of prenatal wards mark a step in advance in this direction.

Among the potent causes of premature birth and death is direct violence to the mother. Among these, too, are the physical strains to which the poor are subjected in lifting the proverbial coal bucket and in active exercise in domestic work, especially over the wash-tub. Manufacture work by pregnant women in badly ventilated buildings, amid poisonous fumes, and with machinery which constantly racks and jars the operator, is a frequent cause of miscarriage and premature birth.

In domestic matters the building of model houses heated by vapor or hot water from a central plant, and with stationary tubs for laundry work, will greatly lessen the burden of domestic toil. Long and tedious stairways of the old tenements may be replaced by elevators. Laws are being enacted which forbid the employment of pregnant women

in manufacture work under conditions unfavorable to health.

The speed mania of the present day is directly responsible for a considerable proportion of abortion and premature birth. The motor car, to those who ride in it, as well as to those who are knocked down or badly frightened by it, is a frequent cause of abortion. The frightful accidents during the past winter upon the best railroads of the country, and the recent shipwreck, illustrate the dangers of modern locomotion.

While the comfort of the mother suggests that she remain comparatively quiet, the necessity or disregard of ordinary prudence may expose her to injury in modern methods of travel.

Syphilis and alcoholism are recognized as among the great causes of prenatal death. While no method has yet been found to stamp out venereal disease, the campaign of education among the young now in progress, a better knowledge of the diagnosis of syphilis, improved methods of treatment, and more abundant hospital facilities, should lessen the frequency and the severity of syphilis.

In preventing alcoholism, especially among women, the effort so successfully made in Germany to lessen the consumption of strong alcoholic drinks, to place harmless beverages at low prices on sale in all public places, and public education in the dangers of alcoholism and its effect upon the offspring, have been productive of good in other countries and should be equally potent here.

A problem more difficult of solution, but more often brought to the attention of the practicing physician, is the nutrition of a pregnant woman, and especially the avoidance of the toxemia of pregnancy. Among the well-to-do, patients report to their physician for care during pregnancy much earlier than in former years. The nausea and discomfort which mark the toxemia of early gestation cause the patient to speedily apply for relief. Among the poor, overburdened with the necessity for earning a livelihood, and often with the care of other children, these symptoms are disregarded and the patient frequently does not come under treatment until threatened with eclampsia, when fetal death is inevitable. To avoid such loss of life the general hygiene of the population must receive attention. All maternity hospitals now urge patients applying for confinement to report as often as possible to the clinic during pregnancy. Frequent examinations of the urine are made, and in many maternities as many beds as available are set aside for the treatment of toxemic mothers. The distribution of pure milk at a low price, and instruction in cooking and in general hygiene, all assist in this direction. The establishment of large city markets where the poor can obtain fresh vegetables at low prices directly from the farmer, will materially aid, and the efforts made by our cities to improve the milk supply should be of great value.

Secondary to the toxemia of pregnancy, and often one of its most dangerous consequences, is the anemia from which the poor and pregnant woman often suffers. This is frequently accompanied by dilatation of the heart, valvular disease, or vascular lesions, which may culminate in death from syncope or fatal hemorrhage. In these cases the prematernity ward gives the physician the only opportunity of properly caring for these patients.

Obstetric surgery has its place in the prenatal care of the child. Suppurative foci in the mother should be surgically treated by incision and drainage. In two cases of colon bacillus infection of the right kidney, it has been my privilege to drain the kidney by incision and to see the patient recover and give birth to a living child. In one case of toxemia of pregnancy, resulting in the death of the infant soon after birth from toxemia, a very thorough study of the fetus showed the characteristic lesions of toxemia in the fetal liver and lungs, while the blood swarmed with bacteria. The mother's symptoms left no doubt regarding the existence of a suppurative focus in the biliary passages, probably in a chronic cholecystitis. Operation in this case was refused.

The good results following the prompt removal of the infected appendix in pregnant

women, and the continuation of pregnancy with successful issue, form another illustration of the benefits of obstetric surgery in saving infant life during pregnancy.

The obstetric surgeon may also assist greatly in saving fetal life by restoring to complete health the mother who has lost a pregnancy by abortion. Modern methods of treatment in abortion, which bring about the complete discharge of the decidual membrane with normal involution, prevent subsequent abortion and fetal death. The repair of lacerations of the genital tract and the surgical cure of displacements of the uterus enable a woman who has lost a child to subsequently pass through a successful pregnancy.

An important adjunct in this work consists in the coöperation now given in many of our cities by visiting obstetric nurses and sociological workers. The modern maternity hospital not only cares for its patients in the wards and at the dispensary, but the visiting nurse advises the pregnant women, and by her knowledge of the symptoms of threatened abortion and toxemia will bring her to hospital care in time to save the child. The sociological worker helps in securing employment, relieving the pregnant woman somewhat of the burden of other children, and brings about the improvements in sanitation necessary for a healthful and successful pregnancy.

It is true that the present time is one in which the burdens of life seem to increase rather than lessen, and in which the degeneration among the rich and the poverty among the poor threaten a decided lessening in the population. But against this must be reckoned the wide-spread interest in the subject of eugenics and the concerted movement now made by many and powerful agencies for the saving of infant life. While the legal value of a life is its wage-earning capacity only, and while the little child's life has only a sentimental value, the possibilities in each human life still remain beyond our ken. In this country at least the experience of Jinks's baby should scarcely be duplicated. You will remember how this child, born in a hospital, reared in an almshouse, and graduated from various benevolent institutions, finally came to young manhood only to commit suicide because of the utter burden and futility of his existence.

With eugenics to give the child a fair start, and with the legitimate development of sociology, American democracy should offer a better fate than this.

WHAT THE OBSTETRICIAN CAN DO TO REDUCE INFANT MORTALITY.[1]

BY BROOKE M. ANSPACH, M.D., PHILADELPHIA.

The obstetrician can do a great deal to prevent still-birth and the death of children in the earlier weeks of life. His office is largely concerned with prophylaxis. He must exercise it during pregnancy, at the time of labor, and after the baby is born.

The health of the infant is directly influenced by the health of the mother; as the sound body favors the sound mind, so the healthy woman begets the healthy child.

A few facts gathered from the vital statistics of Philadelphia may be of interest. The average number of the still-born in Philadelphia per year is 1917—that is, about one child in every twenty is born dead.

The mortality among infants during the first year of life is 19.4 per cent of the total mortality of all ages and from all diseases. In 1910 there were 26,879 deaths from all causes and including every age; 5232 of these deaths were of infants under one year; in addition there were 2026 still-births, and, it is estimated, 10,000 miscarriages. The commonest cause of death during the first three months of life is prematurity; other causes are congenital debility, malformations, and birth injuries.

The principal dangers to the product of conception during pregnancy are those

[1]Presented to the South Branch of the Philadelphia County Medical Society, April 26, 1912.

toxemias—pernicious vomiting, eclampsia, acute yellow atrophy—of which we all know only too well, and sometimes only too painfully. Over the general diseases accidentally acquired and not closely identified with pregnancy the doctor has no control (and these we need not discuss), but the toxic disorders of pregnancy too often are the result of insufficient attention on the part of the practitioner.

It takes considerable trouble to watch closely the emunctories of the pregnant woman. The eclamptic state often arises without any warning, like a thunderbolt out of a clear sky. Nothing but systematic repeated examinations and attention throughout pregnancy will guard against it. Although one may urge that in many instances the lay mind is not alive to the importance of this attention, and will not recompense the physician adequately for it, that doctor will do well who observes every precaution, no matter what the fee; because a serious toxemia will give him far more trouble than he would be obliged to take in order to guard against it. An ounce of prevention here, truly, is worth a pound of cure.

It is hardly necessary to detail the watchfulness required to detect the early danger-signals of a serious toxemia, nor to mention the measures which may be taken to stimulate the emunctories of the pregnant woman so that there will be no accumulations of metabolic poisons within her. Nevertheless, I wish to lay emphasis upon the great importance of securing each day a free evacuation of the bowels, the necessity of examining the urine at frequent intervals, and the importance of the information that may be obtained by taking the blood-pressure throughout the course of pregnancy. Even a small amount of albumin in the urine may be of serious significance, and should never be treated lightly. A steady rise in blood-pressure is a momentous indication; headache, disturbed vision, and unusual nervous symptoms must always put the careful obstetrician on his guard.

It may not be out of place at this point to say a word concerning the prevention of miscarriage. One of the commonest causes of this occurrence during the early months of pregnancy, in women who consider themselves and are otherwise in good condition, is displacement of the uterus. Every pregnant woman should be examined in the early months to see if the uterus is in good position; backache or urinary and rectal difficulties make this examination doubly imperative.

Possibly the most important office of the obstetrician is the conduct of labor. It is a distressing thing to deliver a woman of a still-born child, and especially so if, up to the time of labor, the family have believed that all was well and that they might hope for a healthy baby. Too often, I fear, such a disappointment may be traced to insufficient examination of the patient before she falls into labor.

I do not know how customary it is for the general practitioner to practice pelvimetry, but no one will deny that every primipara should be carefully measured, so that the size of her pelvis is known by the end of the seventh month of gestation. These measurements at first need be only those obtained by external methods, the most important being the external conjugate, which indicates the size of the pelvic inlet, and the bi-ischial, which indicates the size of the pelvic outlet.

If the external conjugate falls below 19, an internal examination should be made about a month before term, to get the true conjugate and to see whether the fetal head can be made to enter the pelvic canal. If the difficulty of measuring the internal conjugate is great on account of rigidity and tenderness, and if there seems to be a disproportion between the size of the head and the pelvic inlet, an anesthetic may be given in order to settle this important question. The relative proportions of the fetal head and the pelvic inlet are possibly the best index of the probable course of labor in moderate degrees of contraction.

If there appears to be any great disproportion, the treatment of the pregnant woman enters the domain of surgical ob-

stetrics, and she will require either the induction of labor two or three weeks before term, or some surgical obstetrical procedure which I need not detail.

Another very important diameter of the pelvis which is infrequently taken is that of the pelvic outlet, the estimation of the angle of the pubic arch, and the space between the tuberosities of the ischia and the sacrum. A woman sometimes will progress in labor normally until near the end; the head will appear at the vulvar outlet, and then labor may be indefinitely delayed, all because the infrapubic angle is small and the distance between the tuberosities greatly diminished. Sixty per cent of contracted pelves in white women are funnel pelves.

When the transverse diameter at the first examination is found to be less than 10 centimeters, the posterior sagittal diameter of Klien should be at once taken in order to see what the prospects are for an easy delivery. It has been found that the ordinary dorsal position, with the thighs flexed sharply upon the abdomen, will widen the pelvic outlet, just as the Walcher position increases the internal conjugate.

Difficult labor is by no means limited to contracted pelves. Faulty position also plays a considerable part. The position of the baby should be determined before the onset of labor. Forewarned is forearmed, and if the doctor knows beforehand that the child is presenting by the breech, or that the occiput is posterior, he can take steps accordingly, which will conserve the interests of the patient and reduce infant mortality. In multiparæ, external manipulation will often convert the breech into a head. In primiparæ, external version may be unsuccessful, but then the practitioner may adopt the plan of safety in such cases, viz., respond quickly to the summons, watch the patient very carefully until the breech is born, and then have suitable help at hand to deliver the patient rapidly and aseptically.

In the delivery of the after-coming head I have found the use of the forceps very valuable. It is my custom, if the after-coming head is not immediately delivered by the use of Mauriceau's method, to immediately apply forceps, and I have never been unsuccessful in securing speedy delivery in this way. If the doctor is unaware of a breech position, he may be unprepared for the rapid delivery, which is often necessary, and although it may be urged that breech positions are usually slow, and there is generally sufficient time to secure competent help, it is desirable to avoid, at any time, any undue haste in the preparation for such obstetric maneuver as may be necessary, and it is desirable to warn the family beforehand of the unusual danger to the child.

The attitude that should be taken in the conduct of an obstetric case from the standpoint of interference or non-interference should be that as long as the membranes have not ruptured, and the os is not fully dilated, the patient may be regarded with equanimity. She may be very tired and restless as the result of painful but inefficient uterine contractions, but much comfort may be obtained by the administration of a hypodermic of morphine and by a period of complete rest.

No time need be spent in speaking of the avoidance of infection during labor, for it is only too evident that an infection of the mother may be of serious import to the child. The prevention of excessive hemorrhage in the third stage of labor is of great importance, because in controlling it there is great opportunity for infection, and a serious hemorrhage may interfere with the milk supply.

The first great danger to which the new baby is exposed is hemorrhage from an improperly secured unbilical stump, and the second is infection of the umbilicus. To guard against the first, tape should be preferred to silk, as it is less likely to cut the vessels. To avoid the second, careful asepsis should be observed in tying and dividing the cord, and the stump should be immediately protected by a sterile cotton compress.

The next problem in the conservation of the infant life is that of nursing. Few mothers will refuse to nurse their children if they are told that it is greatly to the

advantage of the infant to be raised on mother's milk. Possibly the higher we go in the scale of intelligence, and surely the higher we go in the scale of womanly instincts, the more readily do we find that our patients acquiesce. I remember no case in which a woman absolutely refused to try to nurse her baby, and breast nursing was only discontinued in those in which the child did not thrive upon breast milk.

I think the inability of the mother to nurse her child sometimes does depend upon the woman's intense desire to avoid breast feedings, and under these circumstances nothing the doctor can do may be of any avail.

The other difficulties which the obstetrician encounters are poorly developed and tender nipples, or fissures, to say nothing of the more serious breast infections. First of all, it should be remembered that both the baby and the mother must be taught how to nurse, and that although during the first week nursing is painful, unsatisfactory, and difficult for both mother and infant, gentle persistence will transform it into a satisfactory, painless, and even pleasurable process.

The nipples, before confinement, should be carefully cleansed with soap and water about once a week, and every night a lotion of borax in equal parts of alcohol and water should be applied. When nursing is begun the nipples should be anointed after each nursing, with some sterile ointment. Fissures should be looked for if the nipples are tender, and may often be detected by the application of alcohol. The moment a fissure is discovered, it should be touched with a solution of nitrate of silver, and a nipple shield should invariably be used.

Breast massage is not often necessary, although when the breasts are very hard and caked it may be of considerable advantage if applied gently and if the rubbing is always made in the direction of the nipple. The breast pump may be useful if applied gently and aseptically. The fulness of the breasts can be influenced largely by the diet, reducing the liquid constituent when the breasts are congested, and increasing it when they are flabby and soft. The use of saline purgatives will help to reduce congestion of the breasts, while enveloping them in hot compresses with a breast bandage will give more comfort than anything else.

There is hardly any drug or combination of drugs which may be used as specifics to increase the milk supply. The latter depends upon the general health of the mother and her mammary development, so that outside of general tonics and a nutritious diet, with plenty of water and milk, there is little to be advised. When the breast supply is scanty, but there is hope of increasing it, there is no objection to the use of condensed milk, or modified milk, as an auxiliary food.

It is a mistake for the mother to think that bottle feeding is much less troublesome than breast feeding. If the proper care is taken in the preparation of the milk mixture, in its refrigeration and subsequent heating before use, and in sterilization of the bottles and of the nipples, it is just as much trouble and considerably more expensive. If this is explained to the mother, very few will prefer bottle nursing to breast nursing from the standpoint of the labor involved.

Although a very large percentage of infant mortality may be traced to improper feeding during the first year of life, I do not for one moment believe that this mortality would occur in bottle-fed infants if the artificial feedings were given in the approved form.

It goes without saying that if the cow's milk is impure, if the mixture is improperly selected, if the bottles and nipples are ill kept, the danger is great; but when good milk is obtained, when the proper formula is used, and when all the care that is required is taken, there will be few fatalities in the bottle feeding of infants. I am convinced that if after a conscientious trial of three or four weeks the breast-fed baby does not gain, it should be weaned and put on the bottle.

MANAGEMENT OF LABOR, WITH SPECIAL CONSIDERATION OF THE PRESERVATION OF THE CHILD'S LIFE.

BY RICHARD C. NORRIS, A.M., M.D.,
Physician in Charge of the Preston Retreat of Philadelphia.

The conduct of labor in such manner as to save as many babies as possible involves practically the entire field of obstetrics. The part assigned to me in this symposium presupposes that the expectant mother has been carefully studied during pregnancy and that a definite plan for the conduct of her labor has been prearranged. The probability of an obstructed labor from any mechanical obstacle, from faulty position and presentation, the condition of the soft tissues of the birth canal, and finally the patient's equipment for labor learned from the studies of her metabolism, of her muscular energy and of her nerve reserve force, all predict to the experienced obstetrician greater or less difficulty as the case may be. Generally speaking, the conduct of labor, with the mother's best interests in view, will be also for the child's best interests, but as we shall see later, accidents and even foreseen complications not infrequently occur, in which these interests are placed in the balance. When this does occur, there are many factors to influence the results.

The Anglo-Saxon feeling that the mother's interests are paramount, religious belief, the personal equation of the attendant and his obstetric judgment and skill, the presence or absence of proper environment for major obstetric operations, and other factors, do and always will influence the saving or loss of infantile life.

During the year 1911 in round numbers there were 40,000 reported births in Philadelphia; 2131 still-births at term occurred; 559 premature babies were still-born; approximately 9000 miscarriages occurred (estimated). Graphically stated, a baby was born every thirteen minutes, a baby was lost before birth every forty minutes, and a still-birth at term occurred every four hours.

This is indeed an alarming mortality and shows how undaunted nature is in her efforts to perpetuate the race. Is this mortality hopeless? Can improved obstetric methods and a wider knowledge of modern obstetrics prevent this death-rate? I think so. Practitioners of medicine must abandon "wait for nature" methods and must learn how safely to interfere in the child's interests. The midwife must be properly trained and restricted, or wholly eliminated, and her clientele sent to the hospitals. There is no middle ground. Either better obstetrics must come or the high still-birth record must continue.

It has interested me to study and compare the city's records with my own at the Preston Retreat—a well-equipped maternity. For this purpose I have studied the last 1000 cases (actually 1112) and I find the premature still-born death-rate practically the same (1.5 per cent) as that of the city (1.4 per cent). The still-born death-rate (2.4 per cent) at term, however, is less than one-half that of the city's still-born term death-rate—5.3 per cent.

PRESTON RETREAT—1112 CONSECUTIVE DELIVERIES.

	No. of cases.	Still-births.	Causes of death.
Forceps:			
High	35	5	1 prolapsed cord; 2 eclamptic mothers; 1 premature, maternal heart disease; 1 compression.
Low	56	7	2 prolapsed cord; 1 macerated; 1 acute hydramnios (5th month); 3 compression; delayed use of forceps in 2.
Breech	36	4	2 prolapsed cord; 1 macerated; 1 died after 48 hours (compression).
Version	4	2	1 prolapsed cord; 1 placenta previa (central).
Pubiotomy	3	0	
Cæsarian section.	9	0	
Total	143	18	

Four infants' deaths due to operative delivery in 143 operative cases. Labor was induced 39 times.

	Births (1911).	Premature still-births.	Still-births at term.
City of Philadelphia	39,975	559	2,131
Preston Retreat	1,112	17	27
Per cent mortality:			
City of Philadelphia		1.4	5.3
Preston Retreat		1.5	2.4

While the Retreat's clientele certainly does not represent a large emergency work,

being a hospital, it naturally receives more cases in which the child's life is jeopardized by grave obstetric situations than are to be found in the average obstetric work.

In this group of more than 1000 consecutive cases, 143 obstetric operations were thought necessary, as follows: 35 high forceps; 56 low forceps; 36 breech extractions; 4 versions; 3 pubiotomies; 9 Cæsarian sections. Eighteen babies were still-born, and these deaths as analyzed in the table show that only four were lost through operative obstetrics. To state the matter in another way, of the 143 operations 14 babies were lost from diseases and accidents such as eclampsia (2 cases); central placenta previa (1 case); maternal valvular disease of the heart (1 case); prolapsed cord (6 cases); and diseases of the fetus (4 cases). One hundred and twenty-five babies were saved. Of the remaining 969 babies born without operative aid (excepting such tried measures as castor oil, quinine, bougie or dilating bag to bring on labor), only nine were lost at birth. Labor was induced 39 times in 1116 cases.

Statistics are tiresome details, except to those who are fond of playing with puzzles, and unless some practical knowledge can be derived from them to benefit oneself and others they are useless. Analyzing my work with this end in view, I find that the causes of infant mortality have been about as follows:

Pelvic narrowing and relative disproportion between head and pelvis has been the cause of infantile death in 20 per cent; unfavorable presentation and abnormal mechanism in 8 per cent; disease or deformity of the fetus in 7 per cent; an undilated birth canal, usually associated with some complication requiring, for the safety of the child, a rapid delivery, 65 per cent.

Seitz (*Münch. med. Wochensch.*, Jan. 18, 1910) found, in 50,000 labors in the Munich clinic, that 65 per cent of still-births were due to obstruction by the cervix, 35 per cent directly and 30 per cent to accidents or diseases occurring with an undilated birth canal. It is certainly true, in my experience, that in the problems of saving infant life correct knowledge of dealing with the soft tissues of the birth canal in normal and complicated labors is three times as important as a knowledge of Cæsarian section, pubiotomy, or high forceps. Add to this control of the soft tissues, skill and obstetric judgment in dealing with abnormal mechanisms of labor, and the saving of infant life during labor is tremendously increased. That means that better knowledge of what may be termed minor obstetric surgery is needed if we are to save more babies during birth. The prevention of prolongation of pregnancy and of unduly prolonged labor, the obstetric methods of treating a rigid or partially dilated cervix and vagina, the manual or instrumental means of correcting abnormal mechanism, and the skilled use of forceps, must be better understood and more generally practiced. To do all these with safety to the mother obstetricians must be well-trained surgeons. The average doctor must realize that just as he no longer attempts to operate within the body cavities without special training, so he must abandon obstetric practice unless trained to this branch of surgery.

An entire evening could well be given to discussion of any one of the topics just mentioned. With the few minutes at my disposal it will be best to crystallize from my experience a few axioms of practice that might appropriately be called "baby-saving obstetrics."

Prolongation of Pregnancy.—An infant gains one-third of its birth weight during the last month of pregnancy. The disadvantages of overgrowth of the fetus with well-ossified head, the added risk of premature detachment of the placenta, the increased labor energy required—all justify the induction of labor to prevent a prolonged pregnancy. With the head floating above the brim of the pelvis, in primiparæ, and especially if the position is posterior or when a previous labor has been difficult, induction of labor is a life-saving measure for the infant and is of undoubted assistance to the mother. Where relative disproportion does not exist and the head is not in the pelvic cavity, pregnancy should not in primiparæ be permitted to continue more

than ten days beyond calculated term. In many cases even this degree of prolongation is unwarranted. After viability of the fetus the induction of labor for toxemia is life-saving for the infant as well as for the mother.

Prolonged Labor.—An unduly prolonged labor during the first or second stages, or a sudden accident, such as hemorrhage, convulsion, or prolapsed cord, at any stage is a common cause of fetal death during labor. To save the infant under the varying conditions that may be present and not put in jeopardy the mother require knowledge and skill and sound obstetric judgment.

Of all the signs of impending danger to the infant, slowing of the heart sounds is most important. Rapid or irregular heart sounds, violent movements of the fetus, followed by cessation, are all suggestive; but slowing of the heart-beat is most trustworthy. Throughout a protracted labor the heart sounds should be noted every half-hour. An unduly rigid or edematous cervix, so often seen in primiparæ whose sexual organs and nervous systems are characterized by hypoplasia, is a risk to the child's life in the first stage of labor, for in these cases the nagging pains inhibit uterine contraction, prolong labor for hours, and exhaust the patients. These cases with infantile types of cervix and vagina, and with deficient nerve force and resistance, frequently lose their first babies because prompt aid is not rendered them. They differ from the other types of rigid cervix in strong, healthy women, with or without the cicatrices of former lacerations, in that anodyne drugs such as morphine, chloral, or scopolamine are not to be employed. Complete anesthesia with surgical means is necessary to open the birth canal—bags, manual, or in extreme cases incisions are better chosen—for this class of cases require assistance from start to finish both for their own and for their babies' sakes.

While I am sure that nature protects the unborn child from narcotic drugs given to the mother during labor, it is my practice never to give more than ¼ grain of morphine with 30 grains of chloral as the maximum dose throughout the entire first stage of labor, and often less is given. The danger to the child is a real one from large doses of scopolamine or any narcotic drug given in sufficient amount to make the patient unconscious of her suffering; and even ether, which is safest of all, can be the cause of death of the fetus.

Rupture of the bag of waters in primiparæ in the first stage of labor (except it be in eclampsia) is an obstetric crime. In a multipara when the os is two-thirds dilated it is often an obstetric blessing. Prolonged labor due to an overdistended bladder is evidence of an inefficient nurse. No one can hope to manage successfully for the child a prolonged labor without knowledge of the mechanism in progress and of the means to correct it when it becomes abnormal. Incomplete flexion in occiput posterior positions, at the pelvic brim or on the pelvic floor, or posterior rotation, must be recognized and appropriately treated. Face presentation must be recognized and an anterior position of the chin secured early in the labor. Transverse presentation, twins, breech—any deviation must be known early in the labor, before, indeed, the diagnosis of prolonged labor can be made, for each abnormality of presentation requires its own time, and a prolonged labor is not to be measured by hours only.

It is impossible to discuss baby-saving obstetrics without paying a tribute to the obstetric forceps. The time has come when its usefulness is disappearing for serious bony obstruction to labor, while its field is enlarged for assisting labor after preparing the soft tissues of the canal for a delivery expeditious for the mother and life-saving for the child. In a word, difficult high forceps deliveries represent an era rapidly becoming historic. Axis traction deliveries of fixed and well-molded heads will always be a triumph of obstetric art.

In conclusion let me say that the most important of recent obstetric advances—those dealing with the soft tissues of the birth canal—have contributed much to the saving of infant life. When an obstetric emergency arises, endangering either the

mother or the child, the obstetric world is declaring that means are at hand safely to open the soft canal in order to avert danger to both. Conflicting opinions there are, to be sure! It is my judgment that these means should be properly safeguarded, and I would offer the following summary of their efficiency and danger:

Bag dilatation is available to the average obstetrician, especially for use in the home when immediate delivery is not required.

Manual dilatation will meet most emergencies when the cervix is effaced and the external os is the only obstacle.

Mechanical dilators are dangerous. They may be used to *begin* dilatation in some urgent cases.

Vaginal hysterotomy is the most rapid and most efficient, but requires *always* a skilled vaginal surgeon and hospital environment.

Abdominal section is to be preferred when cicatricial contraction or anatomical defects are extreme.

The surgeon skilled in the use of forceps, with a practical knowledge of mechanism and of when and how to safely open the cervix and vagina, is the obstetrician likely to save the largest proportion of babies during labor.

THE MODERN CONCEPTION OF GOUT AND ITS LATEST TREATMENT.

BY H. A. BOSMA, M.D., NEW YORK.

Although Wollaston saw some relation between gout and uric acid, and Garrod in 1848 proved that there was an increase of uric acid in the blood of gouty patients, it is only of very recent date that we know something more definite about the pathogenesis of arthritis urica.

It was Emil Fisher who taught us that the source of uric acid is not albumin, as was generally believed, but he demonstrated that it is derived from nuclein, the main constituent of the cell nuclei.

In uric acid formation we have the very striking example of the action of a succession of enzymes. The first of these is called nucleose, which liberates from nuclein the two purin bases, named adenine and guanine. The next to come into play are certain deamidizing enzymes; one of these, called adenose, converts adenine into hypoxanthine, and another called guanose converts guanine into xanthine. Finally oxidoses step in, which convert hypoxanthin into xanthine and xanthine into uric acid. In some organs, especially the liver, there is a capacity to destroy uric acid after it is formed, and so we are protected from a too great accumulation of this substance.

The enzyme responsible for uric acid destruction is called the uricolytic enzyme. The uric acid which ultimately escapes as urates in the urine is the undestroyed residue. Now, Brugsch and Schittenhelm have shown that the essential factor in gout is a disturbance in the nuclein metabolism, brought about by some defect in the entire fermentative apparatus, producing a constant presence of uric acid in the venous blood.

There is no gout without a uricemia as precursor, yet there are uricemias that do not produce gout. In leukemia, for instance, there is a considerable increase of uric acid in the blood. There is sometimes far more than we find in gout, yet the sufferer from leukemia has no gouty attacks, and no tophic formation takes place.

When a healthy normal person is fed on a purin-containing diet, uric acid develops in his blood; a gouty subject, however, has uric acid in his blood when being fed on a diet entirely free of purins. In his case it is derived from the nuclein of his own body cells.

Whether these disturbances in the action of the ferments are primary or associated with or dependent on other regulators in the body, like the nervous system, is not known.

Another observation of recent date is that the uric acid in the blood is mononatrium urate held in solution. The blood of a

gouty person is not oversaturated with uric acid, nor is its alkalinity decreased—in fact it often is increased.

The mononatrium urate thrown out of solution sets up inflammatory processes in the joints; Van Loghem thinks that it is mechanical irritation that causes the inflammation. What then causes urates to be deposited in the joints? Experiments by Van Loghem and Silbergleit have shown that an increase of sodium in the body fluids decreases the solubility of the mononatrium urate, and they strengthen the views of Falkenstein, who empirically found beneficial effects from the ingestion of hydrochloric acid. Umber thinks that in gouty subjects the affinity of the tissues for uric acid is increased, and he refers to the great absorbent power of cartilage for uric acid.

From this résumé it will be seen that in the pathogenesis of gout there are still problems for further study, yet we do know that the essential factor is a constant uricemia, in many cases brought about by an anomaly in the nuclein metabolism, but not exclusively so. We may also have a uricemia in the wake of sclerosed kidneys in the stage of decompensation with all the clinical symptoms of gout resulting therefrom.

Our therapeutic measures are the logical deductions from what we at present know about the pathogenesis of gout:

1. Restrict purin-containing food.
2. Accelerate the excretion of uric acid by way of the kidneys and intestines.
3. Increase the solubility of the urates.
4. Promote oxidation of uric acid.

About the last point a few words: Lowenthal's experiments with radium on ferments led Gudzent to investigate the influence of radium on the disturbances in nuclein metabolism, caused by a deficient action of ferments. It was shown that *in vitro* radium emanation dissolves and destroys mononatrium urate, and further that it does the same thing in the human body. Gouty patients after a prolonged treatment with radium emanation, whether taken in water or by inhalation, lose their uricemia and they metabolize easily purin-containing food. This is a fact of great importance. According to Gudzent this is due to activation of enzymes that had become inactive, chiefly of the uricolytic ferment. These beautiful researches have paved the way for a more radical cure of gout and other diseases of metabolism, and they also have thrown a new light on the empirical fact that many constitutional diseases are greatly benefited by taking the waters in watering-places here and abroad. They explain why, for instance, at Postyen in Hungaria, the mud, so highly charged with radium emanation, has, according to the London *Practitioner,* an unusually beneficial effect on rheumatic and gouty conditions and in the removal of chronic exudations, especially those around joints and tendons.

Through the work of the Curies, therefore, in bringing radium and its activities to the attention of scientists, we are apparently on the threshold of a better understanding of the actual meaning of many wonder cures reported from various bath resorts which hitherto excited a certain amount of skepticism through the lack of a satisfactory scientific explanation.

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HYDROPHOBIA OR RABIES.

CUMMING in the *Journal of the American Medical Association* of May 18, 1912, tells us that the cauterization of a bite is recognized as the first and most important measure in dealing with this disease. The free use of fuming nitric acid is a satisfactory method of cauterization. The penetration of the acid makes it a valuable cauterization agent, but even when this procedure is carried out, about 10 per cent of the experimental animals die. It is advisable, after sufficient application of the acid, to wash the wound freely with sterile physiologic salt solution, thus removing the acid and preventing unnecessary destruction of tissue. If nitric acid is not to be

had, full-strength phenol (carbolic acid) may be used.

It is, however, eminently important that this cauterizing agent be washed from the wound by the free use of absolute alcohol. This procedure prevents subsequent ulceration, which is so common when the alcohol wash is neglected.

These two agents, nitric acid and phenol, destroy the virus by virtue of their cauterizing action; yet in high dilutions neither has a disinfectant action on the virus. In fact, a one-per-cent solution of carbolic acid is an excellent preservative for this particular virus; for instance, an emulsion of rabic brain made up in a one-per-cent phenol solution, or any one of its numerous derivatives, will preserve the virulence for several weeks.

In formaldehyde solution, on the other hand, we have a specific disinfectant for this virus. The specificity of the antiferment action of formaldehyde on rabies virus is easily demonstrated by laboratory experiments. Formaldehyde in as high a dilution as 0.025 per cent will destroy the virus in a short time. In the treatment of wounds inflicted by rabid dogs the use of a 5-per-cent formaldehyde solution applied to the wound for twelve hours is preferable to the cauterizing action of nitric acid or phenol because of the specific disinfectant and penetrating action of the former.

Especially should this preliminary preventive measure be instituted in severe lacerating wounds, for in such wounds the degree of infection is high. The immediate treatment of a wound gives the best results; nevertheless, treatment should not be neglected even after the lapse of a couple of days; moreover, under the latter condition the wound should be opened and thoroughly scrubbed. If every wound, especially severe ones on the head, be thoroughly cauterized, and this immediately followed by antirabic treatment, the mortality would be *nil* among those bitten.

As to the time of exposure, it can reasonably be said that a wound on the hand after a delay of three weeks is quite as dangerous as a bite on the head exposed only a few days. The cumulative action and the extension of the virus along the nerve trunks to the central nervous system during the interval of exposure should be always borne in mind. Therefore it is quite as necessary to prescribe an extensive form of treatment to a patient bitten slightly on the extremities with a prolonged exposure as it is to one with a recent head wound.

It is quite safe to say that the virus is not transmitted by the bite of a rabid animal until two days previous to the appearance of the first symptoms. The early symptoms, however, are often very obscure and so slight that they are not recognized. So it is with some difficulty that a decision is reached in advising patients bitten early in the course of the disease to take treatment. If a dog which is naturally not of a vicious kind suddenly bites without provocation, it should be tied securely and kept under close observation for at least seven days. Should the dog develop symptoms of rabies during its confinement the bite should be considered dangerous. An investigation of such a case will usually reveal the fact that the external cause inciting the dog to bite was not sufficient to cause the same act in this dog when normal. Occasionally the only recognized symptom in the early stage is a tendency to bite, but such cases, if kept under observation, develop well-defined symptoms within a few days.

Physicians should not fail to recognize the difference between a dog which bites because it is vicious and one which is in the early stages of rabies. In either case the dog should not be killed, but confined and kept under observation for seven days. If simply vicious it remains well and healthy. If, on the contrary, it is rabid it will develop either the maniacal or paralytic form of the disease and die within a few days. On the other hand, if the dog is shot in the first stages of the disease, a satisfactory laboratory diagnosis may be difficult and delayed a longer time than is required for the development of the characteristic symptoms in the dog.

EDITORIAL.

GASTRIC AND DUODENAL ULCER.

It is not many years since duodenal ulcer was an almost unknown quantity in the consideration of abdominal lesions, but with the investigations made by abdominal surgeons in the course of their work it has become evident that it occurs far more frequently than has hitherto been believed, and some surgeons have gone so far as to assert that, as a matter of fact, it occurs more frequently than does gastric ulcer. That this is a fact cannot be accepted. The proportion is probably 5 to 1. The important point to remember is that duodenal ulcer is always to be considered when the diagnosis of gastric ulcer is being made. Many of the patients that have been supposed to be suffering from gastric ulcer have been found on the operating table to be free of this lesion, and Moynihan in the *British Medical Journal* of February 17, 1912, states that even in cases in which the study of the case had been most circumspect, before a diagnosis of gastric ulcer was reached, the operator nevertheless has found not the slightest evidence of structural disease, and this holds true not of one case but of many cases. There are cases in which bloody vomiting takes place without any ulceration, apparently as the result of some degenerative change in the superficial vessels of the gastric mucosa.

That an ulcer once developed remains superficial for any length of time is probably untrue. Moynihan believes that any ulcer which has existed for a length of time involves practically all the coats of the stomach in its ravages, and while his opinion may be exaggerated, in that the cases he sees are far advanced when they come to surgical interference, nevertheless his experience is of value in impressing upon us the persistency and chronicity of this disease. It is also to be remembered that in many patients who are supposed to have gastric ulcer the lesion is not in the stomach at all, but in some other part of the abdominal cavity, as an adherent or obstructed appendix, or tuberculous ulceration of the ileum and cecum, stones in the gall-bladder, or obstruction of the stomach. Moynihan evidently has not much confidence in Lane's belief that a kink in the ileum is also a cause of such symptoms; but he goes so far as to state that in his own experience the commonest site of gastric ulcer is in the right iliac fossa. In other words, it is really appendicitis.

The points which Moynihan thinks are most important for the diagnosis of gastric ulcer are as follows: When the ulcer is situated on the lesser curvature, pain follows upon the ingestion of food after a definite interval, which is usually about half an hour or an hour. It is felt chiefly in the middle line and to the left, and if the hand is placed vertically on the epigastrium with the fingers toward the chest, to the left of the middle line, and the patient takes a deep breath as pressure is made by the physician's hand, sharp pain will be felt. If the ulcer is on the posterior surface of the stomach pain in the back may be very severe and constant, is apt to be gnawing in character, and the *x*-ray may reveal what is apparently an hour-glass stomach, but which in reality is due to spasm of the circular fibers.

Because of his surgical experience Moynihan has not much confidence in the medicinal measures which have been used in this disease, and he seems to be particularly opposed to Lenhartz's feeding method, although he admits that a strict diet may be beneficial to all parts of the alimentary canal. Moynihan also takes issue with the view that gall-stones are often quiescent and produce no symptoms. He believes that in the vast majority of instances they do produce symptoms, but that these symptoms are said to be manifestations of various forms of dyspepsia and other forms of abdominal disorder.

INTRASPINAL ANESTHESIA.

From time to time in the editorial pages of the THERAPEUTIC GAZETTE, during the last ten or fifteen years, we have drawn attention to facts concerning the production of surgical anesthesia by means of intraspinal injections of various substances, our conclusion in every instance being that while it was entirely possible to produce anesthesia in this manner the dangers and difficulties connected with it are far outweighed by any advantages which it may possess. In the March issue of the London *Practitioner* McGavin and O'Leary call attention to the fact that in 1909 one of them published a series of 250 cases of operation under spinal anesthesia, a stovaine-glucose solution being employed, these cases being added to a series of fifty previously published. They now make a report upon five hundred operations performed under the influence of this combination of substances given intraspinally, and notwithstanding the frank statements which they make concerning evil effects they are still enthusiastic as to its use, advising that it should be employed not only in hospital but in private practice to a much greater extent than at present. One of the advantages is the great saving of time, labor, and discomfort to the patient, and to use their words, "the bill for anesthetics in the hospital was sensibly reduced." Barring the saving of discomfort to the patient, we do not see that any of the other advantages should possess much weight in the consideration of this matter. They also advocate the use of a second injection when the first fails.

They state that only in cases of high operation, in which the possibility of the assistance of general anesthesia has had to be entertained, has food been withheld before the operation, and it is interesting to note that it has been their practice in the more recent cases to give an injection of pituitrin an hour before operation when inducing analgesia at a high level, their object being the combating of the slight but obvious fall of blood-pressure which at times occurs about ten minutes after the injection of the anesthetic as the result of the vasodilator property of stovaine. This fall of pressure, they freely admit, is at times associated with pallor, sweating, and nausea, and occasionally vomiting, but the pituitrin seems to put these symptoms aside or prevent them.

The site of the puncture, they state, may be in any one of the four lumbar interspaces, or in the dorsi-lumbar interspace, the latter giving more certain results and being used where abdominal or pelvic operations are required. The dose consists of from four to six centigrammes of the ordinary stovaine-glucose solution. After the injection has been made the patient is left quiet for a minute, then turned gently on the back, placed slightly in the Trendelenburg posture, and the steady rise of analgesia is closely tested by the pricking of a pin. As soon as the analgesia has reached high enough, the table is leveled, the seat of the operation is screened from the patient's view, and the operation proceeds. The second injections when given should not be more than one-half the original dose, and are employed when the analgesia is insufficient or of too brief duration. McGavin and O'Leary do not seem to think that these second injections increase the danger to the patient, and assert that the second injection can usually be given with ease during the operation. It is interesting to note, too, that they claim that patients who have been operated on once in this manner have, on needing a second operation, asked for it, or actually made it a condition of their undergoing operation.

McGavin and O'Leary frankly give us the disagreeable symptoms which they have met with. It is not possible in the brief space which we have to deal with these exhaustively. Aside from the evidences of vasodilatation already spoken of, they tell us that vomiting has been induced occasionally, either shortly after injection, during operation, or as a postoperative effect, in some instances as early as ten minutes after the injection, in other instances as late as five hours after operation. As a matter of fact the number of cases of vomiting in their series amounted to five per cent. In regard to rigors the occurrence was eight per cent, but the rigors are usually unaccompanied by any marked pyrexia.

On the other hand, the occurrence of some pyrexia is by no means unusual. Indeed, it is so frequent that they speak of it as a more or less normal consequence of spinal injection usually inseparable from the method in question. The average temperature has been 100.5° F., and no less than 327 of the 500 cases showed pyrexia, although there was no sepsis to act as an additional cause. They apparently believe that the febrile movement is due to some irritation of the thermogenic centers. Headache occurred in only 32 of their cases, or 6.4 per cent, and in only one of them was it severe and persistent, although many other observers have concluded that headache was an exceedingly common and often severe symptom. Backache occurred in 0.8 per cent; dimness of vision in 0.4 per cent. Only one case of syncope occurred, with no bad after-effects. In two cases a typical epileptic fit occurred during the operation. One patient was a woman who suffered from varicose veins, the convulsions being limited to the head, neck, and upper extremities. In the second case, one of prostatectomy, the convulsions came on five minutes after injection, but it is only fair to state that both of these patients were subject to these convulsive seizures. Albuminuria occurred in 0.6 per cent, retention of urine in 0.4 per cent, and priapism occasionally. Amongst the postoperative complications four cases had lobar pneumonia and one acute bronchitis. The death-rate in the present series was 16 deaths, or 3.2 per cent. The authors claim that none of these results can be attributed to the effects of the method, and give a table to support their view.

Finally, McGavin and O'Leary state that most writers have considered that infancy, old age, syphilis, gangrene, locomotor ataxia, sepsis, diabetes, and atheroma are all contraindications to this method, but with the exception of infancy they disregard all of them and report a case of a man seventy-two years of age, afflicted with double aortic disease and marked atheroma, diabetic gangrene, and chronic bronchitis, who recovered completely after amputation through the thigh when intraspinal injection was resorted to.

We must admit that the report of McGavin and O'Leary is considerably more favorable than the majority of its predecessors, but we think it evident that the disagreeable effects which they have noted are all of them of sufficient importance to make the ordinary practitioner hesitate before he resorts to this plan except in very extraordinary instances.

In the *British Medical Journal* of March 16, 1912, no less a surgeon than Mr. Barker, of University College Hospital, makes a report upon his experience with spinal analgesia, basing his remarks upon 2354 cases, and stating that every effort has been made to secure uniformity of method in compiling the results. Some of these cases evidently are identical with those included in McGavin's and O'Leary's paper to which we have just referred. Barker believes that the specific gravity of the fluid suspending the drug is an important factor in its influence in the dural canal. The injection fluid consists of stovaine 5 parts, glucose 5 parts, and distilled water 90 parts, all by weight. This solution is, he claims, practically isotonic with the blood and has a specific gravity of 1023 against that of the cerebrospinal fluid, which is 1007. Its high specific gravity tends to make it remain in the lower portions of the cord, and the nerve-roots are therefore immersed in the heavy analgesic fluid, which does not readily go elsewhere. The average dose given has been one cubic centimeter of this solution. He has recently been having the solution put up in ampoules as a convenient way of preserving it and keeping it sterile. Each ampoule holds nearly double the required amount, to allow of loss in filling the syringe and permit the dislodging of air bubbles. The exact dose must always be measured in the syringe and in no other way.

Barker also insists that the operator must in every case strike the dural sac exactly in the middle line. He believes, from what he has seen, that cases of extreme asthenia due to carcinoma or advanced toxemia of any form contraindicate this method. Of the 2354 cases he speaks of three died soon after the injection in a way to throw suspicion on the procedure, but each was in a desperate

condition before the injection was given. Transient diplopia has been complained of in three cases. Faintness and retching occurred in a considerable number of cases; severe headache in about 2.5 per cent of cases, but if all cases of headache are included, in about 20 per cent. Vomiting on the operating table occurred in 10 per cent. Barker is in accord with Müller of Rostock in believing that the measure is a valuable one, the defects of which are probably due to lack of uniformity of procedure.

There were 100 cases in Barker's series in which the analgesia was insufficient for the completion of the operation.

THE DIAGNOSIS AND TREATMENT OF HYPOTHYROIDISM.

It has become more and more evident that increasing attention must be paid to functional disorders of the glands connected with internal secretion. Well-developed cases of myxedema and cretinism can scarcely be overlooked, but other cases which present the symptoms of these maladies in their earliest stages readily fail of recognition. For this reason we think that there is much of interest in the lecture on this subject which appears in the *Clinical Journal* of February 28, 1912, by French of London. He emphasizes the fact that thyroid gland often proves itself a most valuable remedy in those instances in which evidences of a lack of thyroid secretion are manifest, as, for example, in certain infants, who without being true cretins nevertheless possess symptoms of apparent amentia or idiocy; in backward children between the ages of two and five presenting various symptoms, of which the two most familiar are perhaps slowness in learning to talk and delay in learning to walk; and in growing boys and girls who suffer either from general mental backwardness, or what is more troublesome in some cases, from persistent nocturnal enuresis. So also he has found thyroid substance useful in stout, sterile women of the child-bearing age, in women who rapidly become too stout at or about the menopause, and finally in some cases of functional nervous disorder presenting symptoms which can be classed as neurasthenia. Other patients suffer excruciating pains from tic-douloureux, and French reports two cases of extreme tic-douloureux which were cured by thyroid medication when all other measures failed, the thyroid extract being given in the form of the dry powder in one-grain doses three times a day, and afterward increased to three grains three times a day, and after some months diminished to 1½ grains three times a day. Concerning dosage French states correctly that this varies enormously with the individual. In infants and young children ½ grain of the dry powder once a day or at most twice a day is usually sufficient, and after it has done good it may be diminished to as small a dose as 1/6 grain; whereas for adults the common dose would be 1 grain night and morning, or whatever quantity is necessary to produce results. Very rarely he has found 5-grain doses necessary. The first symptoms of overdose which manifest themselves are, in children, diarrhea, and in adults, nervousness. The pulse also becomes rapid.

While we should be careful that the extraordinary results produced by thyroid extract in a limited number of cases do not lead us into the error of believing that this substance is a cure-all, we nevertheless remind our readers that the type of cases which Dr. French describes is well worthy of attention.

DISEASES AMONG SCHOOLCHILDREN AND THE REMEDY.

Upon this topic, of vivid interest to the entire country, there was held a conference in compliance with the desire upon the part of the Mayor of Boston, who was naturally shocked to find upon examination of 42,750 public-school children, reported by the chief of the Bureau of Child Hygiene of the Boston Board of Health, that only 35 per cent of the children examined were up to "physical par," while the remaining 65 per cent were found to be defective or suffering from some definite disease more or less serious. The Mayor naturally propounded a query as to "what the city may and should do to correct such physical defects in schoolchil-

dren as have been or are likely to be found by the school medical inspectors." The conference was called for the purpose of making such practical suggestions as would best aid in remedying the condition.

The most prevalent and important defects are considered in the report, diseases of the mouth, throat and chest being relegated to Dr. Richard C. Cabot (*Boston Medical and Surgical Journal,* April 25, 1912), who after calling attention to the fact that any betterment in health is necessarily expensive and will increase taxes, urges school clinics attached to and managed by the schools where physicians shall not only diagnose but treat all diseases of schoolchildren, unless the parents signify that they prefer the treatment of a family physician. He regards it as entirely irrational to have all the ways for finding out the defects and then to do what amounts to leaving them unremedied. The family physician will never be expert enough to know what adenoids are to be taken out and what left in, or be able to recognize incipient tuberculosis or to know which cardiac murmurs mean heart disease and which do not. Moreover, he does not in the faintest degree accept the interpretation that one out of every forty-two children has heart disease. Whilst believing the inspectors have done the best they could, he holds that it is impossible for practitioners, not especially trained, to recognize and treat the defects of schoolchildren effectively.

Badger notes that 4 per cent of the children examined were diagnosed as suffering from malnutrition, the causes of which generally date back of the school age. It is of interest to observe that a large percentage of the malnutrition cases come to school without breakfast, or with a very insufficient one, and the majority of cases from homes described as good. As for the remedy, in addition to general education of the whole community in the rules of good hygiene, we must look after the establishment of open-air rooms. Such rooms must be established at once and carefully supervised by a medical inspector. Moreover, lunch should be served at the morning session.

Smith observes that 11,691 cases of skin disease were found among the children examined, the number being exceeded only by decayed teeth, hypertrophied tonsils, defective nasal breathing, and enlarged cervical glands. The commonest diseases are scabies, pediculosis, impetigo, and ringworm, all contagious and representing 55 per cent of all the skin affections reported. As to what can be done to improve conditions, more school nurses are urged, and further familiarity on the part of inspectors with skin diseases, provision for medicated baths and sterilization of the underclothing at the same time. It is further advised that means be devised whereby Tam O'Shanter caps may be sterilized. Common roller towels should be done away with, and either paper or individual towels substituted.

Goldthwait, taking up the subject of orthopedic defects, suggests the customary corrective procedures.

Fairbanks holds that nervous and mentally abnormal children are not usually so made by the school system, but that some educational methods are of influence in perpetuating, if not in originating, nervous and psychical abnormalities, and rendering relief of such conditions difficult, if not impossible. His recommendations as to betterment are the abolition of all competitive work, and the absolute abolition of either moral or material rewards for excellence in school work or attendance. This includes the hanging of flags on the doors of rooms showing the highest attendance for the week or month. The elimination of special examinations, the passing of which is held essential as a requisite for promotion. The making of promotion solely dependent upon the capacity shown by the individual child in its ordinary routine daily work, such promotion to occur whenever the child indicates its capacity for such advancement. The elimination, as far as possible, of a fixed standard, either of grade or of graduation, to which children are expected to conform at definite periodical intervals, or at definite and arbitrarily fixed ages. The elimination of report cards sent to parents weekly or monthly, or at any other time. The substitution in place of such formal certificates

of more personal contact with the parents and the home, by means of parents' associations and meetings, and social visitors; these two agents working in conjunction with the school physicians and the nurses, to ascertain environmental or individual obstacles to the successful advancement of the child. Of special teachers for the inapt, the abolition of afternoon sessions for all grades below the fifth for all children below ten years of age, and where afternoon sessions are held the elimination from the latter half of the day of all recitations or study hours, arbitrary memory exercises, mathematics, history data, geographical facts, grammar and language exercises, and the commitment of rules to memory. The reduction of the time during which concentration of the attention of the pupils is required for any one subject and the abolition of home lessons.

From these and other suggestions no less inadequate it can be seen that the solution of the question in school child hygiene is not to be expected from a conference of medical men untrained in the pedagogic methods of the present day. A thorough education of the rising generation gives greater promise of ultimate good than does any other single method.

NEOSALVARSAN.

This is the name which Ehrlich has given to a new preparation, an ingenious chemical derivative from the original salvarsan, possessing the properties of rapid and complete solubility in distilled water, of an equal if not greater therapeutic value than salvarsan and of a lesser toxicity. Schreiber (*Münch. med. Woch.*, Dec. 17, 1911) quotes briefly some laboratory experiments and demonstrates the advantages of neosalvarsan, and holds that if intramuscular injections are employed it should be the preparation of choice, since, being entirely neutral, it produces but a moderate local reaction and is more rapidly absorbed. The strength of solution used for this purpose is 1.5 to 20. None the less it is sufficiently painful and sufficiently irritating to produce a wide edema, both pain and inflammatory swelling, however, being but transitory. As to the effect upon the lesions of syphilis, the neosalvarsan is, to say the least, as prompt as salvarsan. In so far as time has allowed, the Wassermann tests seem to show that it is equally lasting. In one case four hours after the injection of neosalvarsan the spirochætæ could no longer be found in the chancre. In all cases they disappeared in twenty-four hours. None the less Schreiber is in accord with the majority of syphilographers in believing that the chancre should be excised when this implies no ultimate deformity. The after-effects of neosalvarsan are distinctly less marked than those incident to the use of salvarsan. Very exceptionally there was some systemic upset. This was particularly marked when the drug was given to prostitutes who were treated as ambulant patients.

As to the dose, this can be safely increased. In men of ordinary stature and strength 1.5 was given; in women 1.2, though not in the beginning of treatment. The first administration is usually 0.9 in men and 0.75 in women, the quantity being gradually increased with each dose. Children were given 0.15, infants 0.05. With the idea of procuring intensified action Schreiber's method has been to give the first day 0.9, the third day 1.2, the fifth day 1.35, and the seventh day 1.5. In case of powerful men the initial dose is 1.5. The final dose is 6.0. Special warning is given regarding care of patients suffering from severe headache or other symptoms denoting involvement of the central nervous system, since it is under these circumstances that the accidents are most frequent from the use of salvarsan. The beginning doses should be small. Neosalvarsan produced a rise in temperature only after the first injection, this lasting but a few hours. When rise in temperature develops after the second, third, or fourth dose it should be attributed to bacteria. Albuminuria has not been observed. In individual cases pronounced leucocytosis was found. Full doses were sometimes followed by the arsenic exanthemata, the latter between the eighth and twelfth day.

Schreiber says that neosalvarsan should

be emptied from its ampoule into freshly distilled water, and that the containing vessel should be gently agitated for a moment until complete solution is accomplished, which is almost instantaneous. Violent shaking is to be avoided, since it may readily accomplish an oxidation. Also, the solution should be made immediately before its use, nor should it be too hot. If a salt solution be used as a solvent it should not be over .04 per cent, the drug undergoing a change and in stronger solutions becoming toxic. As it comes in its ampoule this preparation is a yellow powder much like salvarsan. Allowed to stand in solution, or kept in the envelope not protected from light, it becomes reddish. Schreiber uses for his solution water at about the room temperature—at the highest not over 20° C. Indeed he has insisted in his use of salvarsan that solutions of this temperature are better than those which are hotter.

It would seem that in neosalvarsan there is offered to the profession a preparation safer to the patient not only because it is absolutely less toxic than salvarsan, but because its method of administration is simpler. The greater efficiency of intravenous administration is so well shown and the technique so simple that even were the neosalvarsan devoid of all irritating qualities, which it is not, the intramuscular injections would probably be used only by those of limited experience. It is a fact that a single dose of salvarsan does little else than cause temporary disappearance of symptoms, and still in the popular mind and to an extent in the profession at large there is an impression that one administration is sufficient to accomplish a radical and permanent cure. This is unfortunate for the patients, since it prevents that systematic and continued treatment which has for its end the complete destruction of all the living spirochætæ in the body. Whether such a cure shall be accomplished by repeated dosage of neosalvarsan or some other and better drug yet to be elaborated remains unproven. The most suggestive fact in regard to the completeness and permanency of cure after such treatment is, however, adduced by the compilation of a comparatively large number of cases of syphilitic reinfection.

REPORTS ON THERAPEUTIC PROGRESS.

A PRACTICAL POINT IN DETERMINING DIGITALIS EFFECT IN AURICULAR FIBRILLATION.

LEA in the *Medical Chronicle* for May, 1912, discusses the recognition of extrasystolics in auricular fibrillation. He admits that this presents varying degrees of difficulty. In some cases they cannot be noted, and this more especially where there is a high degree of irregularity and a rapid rhythm. In slow rhythms they can be more easily detected—most easily when they occur in regular sequence, constituting a pulsus bigeminus; less easily when the extrasystoles are infrequent. In the latter cases it is often not possible to detect them in the absence of polygraphic curves. Finally, there are some conditions in which the extrasystoles are not conducted to the radial artery, and a false idea of the frequency may be readily gained. It is suggested that, in the absence of instrumental aid, the following plan should be adopted in cases in which extrasystoles are present and vitiating the true reading of the effect of digitalis: First count over the apex with a stethoscope the total beats during the space of a minute; then count for another minute the number of coupled beats heard; they can in some cases be detected. Finally subtract the number of these coupled beats from the total number noted, and the result ought to give an approximation of the degree of ventricular response to auricular stimuli, and consequently to the degree of blocking effect of the drug employed. By such a method a much truer indication of the effect of the drug upon the heart can be obtained, and a safer control effected over any possible disastrous results.

A STUDY OF 3268 VENEREAL PROPHYLACTIC TREATMENTS.

HOLCOMB in the January issue of the *U. S. Naval Medical Bulletin* makes a report and tells us the treatment is as follows:

1. Wash penis, head, shank, and under frenum with 1:5000 bichloride of mercury solution with a cotton sponge.

2. Pass water. Take urethral injection of two-per-cent protargol solution and hold to count 60.

3. Rub 50-per-cent calomel ointment well into the foreskin, head, and shank of penis, with particular care about the frenum.

Either side of the frenum is the most frequent site of sores.

Of the 56 cases of gonorrhea occurring in the first 24-hour interval, 26 were recurrent cases; the remaining 30 were primary infections.

There were 1385 exposures in which the treatment was taken within the first eight hours, and among these men there were 19 infections, or 1.37 per cent.

There were 731 exposures in which the treatment was taken in the interval of eight to twelve hours after exposure, and among these men there were 25 infections, or 3.41 per cent.

There were 920 exposures in which the treatment was taken in the interval of twelve to twenty-four hours after exposure, and among these men there were 46 infections, or 5 per cent.

In the first instance one man out of every 72.9 contracted an infection; in the second period one man out of every 30.2; in the third instance one man out of every 20.

Since compiling the above table, and to include the months of September and October, the total number of prophylactic treatments have increased from 3268 to 3624, with the following results: 1.41 per cent, or 1 man in 70; 8- to 12-hour period, 892 gave 27 infections, 3.26 per cent, or 1 man in 30; 12- to 24-hour period, 968 gave 48 infections, or 1 man in 20.

Gonorrhea was the most frequent disease contracted and had 62 infections to its credit. It is interesting to note the period of incubation in some of these cases. Undoubtedly all cases with an incubation period of over ten days should be thrown out, as there is probably a question of veracity on the part of the man, who to escape punishment refers his exposure to the last time he took the prophylactic treatment. There are nine who come in this class. We have not excluded them in our statistics, but leave the reader to judge.

There are several factors that should be taken into consideration with regard to the statistics of the prophylaxis of this disease.

A large percentage of the men returning from liberty come on board under the influence of intoxicants, and as a consequence are careless in taking the treatment. Some of the men, who have sensitive urethras, complain of pain on taking the injection. Needless to say, under these conditions the full benefit is not obtained.

VARIETIES OF COUGH, AND TREATMENT FOR RELIEF OF THEM.

DUCKWORTH in the *Clinical Journal* of May 22, 1912, first states that in acute bronchitis the object is to secure adequate expectoration by simple measures. (In all acute disorders of the respiratory system a warm bed is the first requisite, not sufficiently insisted upon in the early stages.) A mixture of acetate of ammonia, with spirit of nitrous ether, ipecacuanha wine, and syrup of tolu is one of the most appropriate at first, and to this may be added later some oxymel of squill and compound tincture of camphor. A linseed and mustard poultice to the front of the chest by night, and cotton-wool sprinkled with spirit of camphor applied by day, are useful local measures. When the cough is teasing and dry, iodide of ammonium, in two- or three-grain doses, proves effectual in floating off mucus from the trachea and bronchi. In these prescriptions note the intention of giving demulcents with expectorants and securing the soothing influence of opium as contained in one-quarter of a grain in each drachm of the compound camphor tincture

(paregoric). Half-drachm doses of the ammoniated tincture of opium are also of value in restraining cough (Scottish paregoric), as these both contain aniseed oil and benzoic acid. When ordinary opiates are not well borne, heroin may sometimes succeed better.

For chronic bronchitis, especially in elderly patients, we have a larger choice of remedies. The object is to encourage expectoration in two ways—first to render the secretion from the tubes readily mobile, and secondly, to increase muscular power to expel it. The first method is commonly secured by the action of iodides of potassium or ammonium in three- to five-grain doses, and the second indication is met by nux vomica or strychnine. With these any demulcent syrup may be combined. The action of squill may sometimes prove depressing in these cases, when we may employ the infusions of senega, serpentaria, or cascarilla with advantage, adding ten minims of the spirit of aniseed. A favorite prescription of Duckworth's in old patients is the mistura ammoniaci in ounce doses. One of the best local applications is the linimentum terebinthinæ aceticum rubbed into the front and back of the chest. Be careful in employing opiates in any but small doses in the case of the aged. A pinch of snuff is one of the best expectorants, and the sneezing excited by it is usually followed by free expectoration.

The treatment of cough dependent on pulmonary tuberculosis demands careful consideration, and must vary according to the stages of the disease. In the early condition, with limited deposit, cough as a symptom is of less importance than in patients with advanced and progressive disease, yet it is an object to remove products from the air-tubes which may be sources of further mischief, and sedatives might be harmful. If the sputa are viscid, some warm fluid, as hot milk or milky coffee, may prove the best expectorant to relieve ineffectual coughing. Rum in hot milk is sometimes useful where the patient is feeble and emaciated. When the cough is violent it may prove exhausting and induce vomiting. It may also provoke hemorrhage. In such cases some form of opiate is imperative, and one of the best is the compound tincture of chloroform and morphine in doses of ten or fifteen minims. In irritation in the larynx or trachea and larger bronchi, we may employ inhalations of Friar's balsam, eucalyptus, menthol, and camphor with much advantage. Sometimes a small blister over the sternum is effectual in checking violent attacks of cough. A sedative demulcent linctus should be at hand in these cases, and a quiet night may be secured with Dover's powder in five- or ten-grain doses. One object to keep in mind is not to interfere with the patient's appetite, or to overdo the sedative action sought.

The cough excited by laryngeal disease is more appropriately dealt with by local treatment—inhalation of vapors of benzoin, menthol, eucalyptol, or thymol, singly or in combination, or sprays of liquid paraffin containing menthol, camphor, and oil of cinnamon, the latter being more useful in chronic laryngitis. Lozenges of black currant and ammonium chloride give relief, and small blisters, the size of a shilling, applied on either side of the thyroid cartilage, are helpful in tubercular disease of the larynx.

In plastic bronchitis, the severe cough induced by the occlusion of the smaller bronchi is best removed by iodide of potassium, which commonly succeeds in preventing the formation of the casts, and cures the disease.

Cough dependent on aneurismal pressure is relieved by appropriate treatment for the primary disease, and iodide of potassium with reduced diet is indicated for this purpose, and is generally effectual.

Whooping-cough is restrained by inhalations of benzoin, creosote, and other tar products, while belladonna with bromide of sodium, together with a good dietary, are the most efficient agents.

Tussis hysterica is best not treated as a catarrhal symptom in most instances. It should be ignored if tolerated, and not allowed to incur sympathy. Faradism to

the neck and thorax, repeated as required, may prove very effectual. Unfortunately, on the subsidence of this tiresome manifestation, some other equally obvious hysterical symptom may supervene. Isolation is sometimes helpful in removing many of these strange tricks and nervous perversions.

Duckworth thinks he has said enough to convince us that there is, and can be, no routine treatment of cough as a symptom. In each case we must ascertain the exact cause of it, and seek to reëstablish normal conditions of the affected parts as far as possible.

ACIDOSIS.

BEDDARD in the *Clinical Journal* of May 8, 1912, writes on this state.

In regard to diet, he shows that a proteid-fat or strict antidiabetic diet stirs up acidosis in diabetics much more than in normal people. So much is this the case that this diet can easily send a suitable patient into coma within a week or fortnight of his beginning it. He also shows that the acidosis of this diet is prevented by taking with it about 100 grammes of carbohydrate. Therefore it is perfectly safe to put any diabetic patient straight on to a right diet to which 100 grammes of starch is added. A further reduction of starch below this quantity is often necessary; but it is carried out gradually, and its effect is carefully watched. He had also shown that vegetables which contain a superabundance of base are of importance in the dietary.

Having started the patient off on a safe preliminary diet, it is next necessary to estimate and control the acidosis by alkalies. The patient is given sodium bicarbonate by the mouth in increasing doses every four to six hours until the urine is neutral or alkaline. As soon as this point has been reached we know that all the acids which are being formed or have accumulated in the body have now base to neutralize them and to insure their excretion. The dose of alkali can then, as a rule, be reduced; the patient should take enough every day to keep his urine neutral or only just acid. Sodium bicarbonate can be given in cachets, one drachm in each. When, however, large doses have to be taken it is better to dissolve it in warm milk, about one drachm of the alkali in each ounce of milk. It may also be given in a concentrated solution per rectum. Sodium bicarbonate may at first produce some laxity of the bowels, but this soon passes off and is rather a help in severe cases. Occasionally it is not possible to give the patient sufficient alkali to make the urine neutral, because of the presence of an edema similar in appearance to that of acute Bright's disease. The edema is caused by the kidney being unable to excrete such enormous quantities of base in combination with acids; the excess remains behind in the tissues together with water, and edema is produced. This difficulty is rarely seen in young patients; it occurs not infrequently in patients past middle age, because their kidneys are either structurally unsound or have been long irritated by the excretion of acids. As soon as the patient is fully under the influence of alkali his weight begins to go up. This is partly the result of an actual improvement in his condition resulting from the complete neutralization of all acids and the consequent increased ability of his tissues to utilize carbohydrate. But the increase in weight may be exceedingly rapid—several pounds in a few days; such an increase is obviously due to the retention of water in the body, and is as quickly lost if the alkali is reduced.

Having thus estimated and controlled the acidosis, we have now to find the optimum diet for the case. Our object is to keep down the swamping of the tissues with unused dextrose, and at the same time not to stir up the acidosis to a serious degree. At first any reduction of the starch in the food is followed not only by a decreased excretion of sugar, but also by an increased acidosis. It is often, therefore, necessary, instead of giving one diet containing a fixed quantity of carbohydrate, to prescribe alternate diets each of which separately ful-

fils one of the objects in view. Thus a diet of oatmeal and butter reduces the acidosis, but may increase the sugar. This may alternate with periods of fat-proteid or of a diet poor in proteids with the object of reducing the sugar in the urine. As soon, however, as the patient begins to improve materially, we find that the excretion of sugar and of the acetone bodies begins to fall more or less together; because the tissues are now beginning to regain their power of utilizing dextrose, and consequently even the quantity of dextrose derived from the proteid food is now sufficing to prevent the onset of acidosis.

It must be obvious to overy one that if by diet and alkalies we have the power of controlling acidosis in diabetes, it ought to be possible to ward off coma indefinitely, provided that this complication is a pure acid intoxication. It is notorious, however, that although temporary recovery from coma is possible, the patient will ultimately relapse in spite of treatment. It is this failure to prevent coma which alone makes us think that there must be some other factor in its production than acid intoxication.

THE PASSING OF BISMUTH PASTE.

Under this caption BLANCHARD in the *Medical Record* of May 18, 1912, discusses this subject. He was the first to report any considerable number of cases treated with bismuth paste (*Journal of the American Orthopedic Association,* August, 1908). The treatment showed wonderful results. Old sinuses from tuberculous joint disease were cured in from two to six weeks, but after seeing several cases of severe poisoning and hearing of a number of deaths, he began experimenting with a view to the elimination of the bismuth. The conclusion was soon reached that Beck's theories of the bismuth being a cure because it became radiumized in the body, and that it also served as a sort of trellis on which healthy granulations could grow, were altogether fanciful. There is no doubt that the curative action of the paste is purely mechanical. A danger in the use of bismuth paste that so far has attracted but little attention is the likelihood of the heavy bismuth settling down in pus sacs and sinuses and becoming permanently residual. Blanchard has several cases both cured and uncured in which the *x*-ray shows accumulated masses of bismuth that have every indication of remaining permanently. In one case, a boy of twelve years, the *x*-ray shows a mass of bismuth nearly as large as his hand that has been residual for nearly three years and will probably remain so as long as he lives.

The ideal paste for flooding tuberculous sinuses and filling pus cavities must be nontoxic and absorbable. It must sufficiently solidify at body temperature to crowd out the pus, compress the unhealthy granulations, and exclude the air. The following formula for a sinus-flooding paste meets every requirement and is entirely innocuous: White wax, 1 part; vaselin, 8 parts; mix while boiling.

Iodine may be added in badly infected cases. Iodine scales can be reduced to a powder by the addition of 20 per cent of potassium iodide. One, two, or more grains may be put in a small cup. The usual glass syringe should be filled with the hot paste. Half the contents of the syringe must now be injected into the cup and the nozzle of the syringe used to mix the iodine powder into the hot paste. When this mixture is drawn into the syringe the fresh iodine is rather unevenly distributed in the hot paste and it is ready for use. Immediately after injecting the sinus a thick pad of gauze saturated with alcohol should be bound over the opening. The evaporation of the alcohol cools and hardens the paste and prevents its escape. In some cases it is well as a preliminary step to get a skiagram showing all the sinus ramifications and pus pockets. For this purpose Blanchard is injecting sinuses with the following mixture: Ferric subcarbonate, 1 part; white vaselin, 2 parts; mix and boil.

The iron makes as good a skiagram for diagnostic purposes as the bismuth, without its dangers.

The results in over 150 cases of old

tuberculous sinuses flooded with the wax-vaselin-iodine paste showed about 35 per cent cured by from one to eight treatments. Thirty per cent more were cured in a year, and about 35 per cent remained unimproved. This last 35 per cent had retained sequestra or were amyloid and hopeless. The ultimate results of cases cured show just about the same with the wax-vaselin-iodine paste as with bismuth paste. But in the uncured and the relapsing cases the advantages of the wax-vaselin-iodine treatment were very great. There were no deaths. There were no cases of poisoning with a painful train of symptoms. There were no cases in which the sinuses and pus sacs were clogged by the heavy bismuth settling down and becoming permanently residual.

In occasional favorable cases the abscess stage of tuberculous hip or other joint disease may be cut short by opening the cold abscess with a small puncture, draining it by mild manual pressure, and filling it to its full capacity with a thick paste so as to completely exclude the air and keep the sac sterile till it becomes obliterated. For this purpose the following is an excellent paste: White wax, 3 parts; soft paraffin, 2 parts; white vaselin, 24 parts; mix while boiling. This abortive treatment can succeed only when the abscess shows upon the surface, the area of tuberculous destruction is small, and the quantity of pus is limited.

Experience has taught several "don'ts" in the use of any flooding paste for the cure of tuberculous sinuses. Do not inject a sinus case in which the *x*-ray shows a sequestrum. The sinus in this instance is a natural drainage tube. It may be healed, but if so the patient will develop a rise of temperature and pains until the pus finds a new exit. By this process the patient is made very much worse. First remove the sequestrum surgically, and then the sinus may be cured to advantage by paste flooding. Do not inject a primary newly opened sinus. The walls are not definitely formed and the injected paste will wander unrestrained, making new sinuses and pockets, causing rise in temperature and disastrous results. Do not obstruct necessary drainage. Wait for several months until the sinus track is well formed and the discharge has thinned down to a semitransparent and only slightly purulent condition. Blanchard has observed two cases of fatal meningitis follow the interception of necessary drainage by the inopportune use of bismuth paste. It is in the old, long-suffering, bedridden cases in which the bone disease has run its course and the old chronic sinuses persist that paste flooding gives truly wonderful results.

Fully 70 per cent of the old neglected or unfortunately treated cases of Pott's disease and tuberculous hip disease with from two to a dozen sinuses and a constant semiserous, slightly pus-colored discharge were cured in from a week to three months. One should not be in a hurry to use the flooding paste, and should remember that the curing of a sinus does not mean the curing of the tuberculous bone disease. If the formation of pus continues the abortive treatment will be a failure and must not be repeated. The bismuth paste treatment has proved a wonderful boon to a class of cases that were practically incurable up to the date of Beck's discovery. The elimination of the bismuth improves the treatment by removing the grave danger of clogging the pus sacs and sinuses with residual bismuth and the constant danger of poisoning, with, perhaps, fatal results.

ON THE PREVENTION OF OPHTHALMIA NEONATORUM.

The *Boston Medical and Surgical Journal* of May 16, 1912, contains an article by MACKENZIE on this topic. He insists that the physician's responsibility does not rest with the use of prophylactic measures alone, for our therapeutics are by no means infallible; as careful observation should be made of the child's eyes at each visit as is made of the cord stump, or of the temperature or pulse of the mother, this observation to be made under a good light and particular note taken of any swelling, redness,

or discharge. Probably many of those practitioners who conscientiously use prophylaxis as routine fail to consider these latter important duties.

Once the disease is established, what should the physician do? Text-books are numerous and quite fully explain the therapeutic measures to be applied; hence it seems needless to propound them here. One important fact they do not mention, however, is the absolute necessity of careful and efficient nursing. The importance is but recently emphasized by a case which not long since came under his observation, that of a small child with purulent ophthalmia, probably of an otherwise benign type, who through the diligence of the attendant in her efforts to wipe away all the secretion had lost most of the epithelial layer of his cornea, and so given the infecting organisms the chance to ravage the deeper layers of that structure at will; the result, a blind baby! The other extreme, that of not sufficiently washing away the discharge, is probably more frequently at fault. This is inestimably important, for washing away the rapidly increasing discharge is undoubtedly more efficient in combating the disease than all the various germicidal agents employed. The attending physician should make himself responsible that all these precautions are properly heeded and the attendants properly instructed; and, furthermore, he should himself watch the cornea for even the slightest haziness, a warning too often seen too late.

GONORRHEAL ARTHRITIS.

SEVER writes on this topic in the *Boston Medical and Surgical Journal* of May 10, 1912. This short résumé of some of the more recent literature seems to indicate that the results vary considerably. Apparently in the early and acute and subacute cases results may be good, relief from pain quick, and early function obtained in some cases. In others, relief from pain alone seems to be the one result obtained. This in itself, however, is of value. It would seem that in the early cases before a general infection had taken place, the mixed bacterins would be of the greatest value as compared to the antigonococcic serum. Apparently, however, the sera have given the best percentage of results, indicating probably that the infection had become a general one and a lack of individual resistance had become established. The matter, however, has not been studied long enough apparently for observers to have come to any definite conclusions as yet in regard to the value of these procedures, and there will probably always exist more or less uncertainty as to the value of the method so long as individual susceptibility and resistance varies. It is almost needless to state that one or both methods—that is, the administration of the mixed bacterins or serum—should be used as a routine in all early cases in the hope of producing an effect.

In the old chronic cases, in which the joints have lost their integrity and become partially ankylosed, orthopedic measures are indicated. The opening of the joint, and the insertion of muscle strips after the fashion of Murphy, or fascia, or distention of the joint by oil and iodoform as advocated by Brackett, seem to offer methods of restoring some function. Stiff and tender spines are to be protected by plaster jackets until the acute irritation has subsided.

SOME DANGERS IN THE USE OF TINCTURE OF IODINE IN SKIN DISINFECTION.

The *Wisconsin Medical Journal* for April, 1912, contains an article on this topic. It reminds us that now that the tincture of iodine has come into common use in the disinfection of the skin prior to operations, some care and discrimination must be exercised to avoid the unpleasant results which sometimes follow its use.

In cases in which the use of a hot, wet dressing after the operation is contemplated, the employment of the iodine is fraught with danger, as under these circumstances there is considerable probability of a severe dermatitis developing even if the iodine has apparently been thoroughly washed off with alcohol before the dressings are applied.

The use in the preparation of the patient of a wet dressing over the site of the operation, or even the use of a small amount of water in the form of lather for shaving the part, may lead to the development of an iodine dermatitis, unless the skin is very thoroughly dehydrated with alcohol, followed by ether and completely dried before the tincture of iodine is applied.

THE TREATMENT OF DYSENTERY.

The *Albany Medical Journal* for July, 1912, contains an article on this topic by MACFARLANE. He says that the following schema has been used by him for several years past in indicated cases:

A glass of cold water on arising.

EXERCISE—15 MINUTES.

Deep breathing	20-30	times
Body bending back- and forwards	10-30	"
Body bending sideways	20-40	"
Body turning	8-24	"
Knee bending and stretching forwards	4-8	"
Body circling	8-30	"
Sawing movement	10-30	"
Body raising	4-12	"
Leg raising sideways (not for women)	6-16	"
Hewing movement (not for women)	6-12	"
Throwing the arms back- and forwards	20-60	"
Knee raising forwards	4-16	"
Swinging arms sideways	30-50	"
Trotting movement without change of base	100-200	"

Eat Slowly and Chew Thoroughly.

Breakfast.—Fruit; oatmeal, hominy grits, cream, and sugar of milk; eggs, fried or scrambled, bacon; Graham or bran bread with plenty of butter, honey, marmalade, or jam; coffee, a glass of water.

Systematic Habit to Nature's Requirements Absolutely Necessary.

Luncheon.—Small amount of fat meat or fish, as halibut, cod, salmon, mackerel; green vegetables, spinach, cabbage, asparagus, onions, carrots, parsnips, turnips, tomatoes, watercress, lettuce; glass of cider sweetened with a tablespoonful of milk-sugar, or buttermilk; raw and cooked fruits; Graham or bran bread; water.

Dinner.—Vegetable soup; fish, meat, and vegetables same as luncheon; salads with plenty of oil, cheese; dessert of coarse meals, fruits; cider, buttermilk, or light beer; water.

Before Retiring.—Stewed prunes, figs, or other fruits; glass of water.

Avoid tea, red wine, cocoa and chocolate, starches, rice, potatoes, sago, farina, and toast.

Recipe for Bran Bread.—1 cupful of bran; 3 cupfuls of entire wheat; 1 pint of sweet milk (buttermilk if preferred); 1 cupful of molasses; 1 teaspoonful of salt; 1 teaspoonful of saleratus.

SURGICAL ANESTHESIA AND OLIVE OIL.

FERGUSON, in the *New York Medical Journal* of May 11, 1912, discusses recent findings concerning olive oil as a speedy restorer of the patient's power to resist infection.

In summing up the lessons to be learned from his study of the influence of alcohol, chloroform, and ether upon the power of the body to resist disease, the following are points which he says should be emphasized:

1. Do not give alcohol in the infectious diseases. It is particularly bad in pneumonia and septic conditions.

2. For surgical anesthesia administer at any one time, during the anesthesia, as little of the anesthetic as possible.

3. Never use alcohol as a stimulant during or after an anesthesia if the opsonic power of the blood is of any importance.

4. Make the anesthesia as short as possible. Begin to administer the anesthetic as late as circumstances permit and remove it just as soon as the operation will allow.

5. Use only a strictly pure ether or chloroform, lest impurities in the anesthetic augment the unavoidable depression.

6. Take special precautions for asepsis and antisepsis in all operations of any length. A very slight infection, which would not manifest itself under ordinary circumstances, may develop into a serious condition after an anesthesia because of the impaired resistance.

7. Inject six ounces of olive oil high up into the rectum in all septic cases, and in all others in which the patient's power to resist infection may be called into play.

8. Remember that time is an important factor in restoring the opsonic index, therefore do not delay the administration of the oil.

9. In injecting the oil "make haste slowly." The sudden deposit of six ounces of oil may cause it to be ejected, and all will have to be done over again. Give a slow, steady, continuous injection every time.

10. Use only pure, limpid olive oil. Absorption to do the most good must take

place comparatively quickly. Therefore take care to have at hand an olive oil free from stearins and other heavy oils, free fatty acids, and other impurities.

11. If there is the slightest question whether to inject the oil or not, inject it. It can never do harm. Be on the safe side.

BITES OF INSECTS.

NEAL writes to the *China Medical Journal* for March, 1912, that he has found the following procedure very useful:

Take one ounce of Epsom salt and dissolve it in one pint of water, wet a bath cloth so that it will not drip and rub the body well all over, and not wipe afterward but dress, and flies, gnats, fleas, bedbugs, mosquitoes, etc., will never touch you. If one is exposed more than usual, being near water, or in a forest, then make a somewhat stronger solution, wet a cloth and rub the face, neck, ears, and hands well—do not wipe, but allow it to dry; it will leave a fine powder over the surface that the most bloodthirsty insect will not attack. Besides, the solution is healing and cleansing; it will heal the bites, subdue the consequent inflammation, and cure many diseases of the skin.

CARDIAC DEBILITY AND CARDIAC DILATATION.

GIBSON in the *Lancet* of May 4, 1912, speaks of the importance of rest. He feels sure that first and foremost amongst the means which we have at our disposal is the vital necessity of rest. It has been universally recognized for many years that, in cases of endocarditis, absolute repose is demanded for a period of at least two months, and that, even after that, life must be very easy for a long time. It is, perhaps, not so fully granted that, in cases of myocardial debility, a lengthy interval must be allowed to elapse before the patient is permitted to return to anything like ordinary duties. After many apparently simple febrile disturbances, so common in all countries, the heart is frequently left in a feeble condition, and many months must pass before the heart muscle is subjected to any stress. When the heart has actually become dilated, as the result of such an affection as influenza, for instance, it may be quite two years before the patient is able to enter upon his ordinary avocations. At first total rest must be enjoined, and this must be carried out in a well-ventilated room with a good exposure. Still better, when it can be attained, one room may be used by day and another by night. The change from the one chamber to the other is certainly most helpful, particularly by inducing sleep. Failing this, two beds may be occupied, the one by day and the other by night, in the same apartment. Although this is not so satisfactory, it is certainly better than using the same bed both by day and by night.

Repose of mind, as well as rest of body, must if possible be secured. Unfortunately, this is not always possible to attain, as the mere fact of illness is in itself likely to induce quite the opposite of a peaceful mental condition; and as to the majority of mankind a serious illness is little short of a disaster, an easy mind is not to be come by in any way. It is therefore, above all things, necessary to furnish the mind with occupation of such a kind as will prevent it from preying upon itself. It must not, however, be overlooked that this employment of the mind should be with subjects which are not in themselves too stimulating. Subjects which are too exciting bring about excessive irritation of the brain cells, with a consequent rise of arterial pressure, producing the twofold result, first of nervous excitement, and afterward of exhaustion; while at the same time the cardiac muscle is placed in conditions of stress from the higher resistance to be overcome, and is therefore likely to undergo strain. It will never fade from his remembrance as long as life lasts, Gibson asserts, how, during convalescence from diphtheria many years ago, his kind attendants essayed to cheer him up by reading "Treasure Island" (then a new work), with the most untoward results in the directions already indicated. The recollection of the immediate palpitation and the subsequent insomnia produced by Stevenson's

charming work furnished a great lesson which never has been, and never will be, forgotten.

The diet of the patient will necessarily vary according to the conditions which have induced the weakness or dilatation, and it should be essentially different in cases arising in the course of some acute affection and in instances of chronic enfeebling disease, or in examples of strain occurring in previously healthy people. In every case, however, two great principles are useful to us—first, that the food which is allowed should have no tendency to cause distention of the stomach or intestines; and secondly, that it should not be of too highly nitrogenous a character. With the first of these two principles in view the separation of the more or less solid portion of the diet from that which is mainly fluid can easily be carried out. To meet the second, it is not difficult to avoid such articles of food as have a high purin content. In this way we steer clear of the use of substances which are rich in extractives. It is usually advisable, also, to limit the amount of animal fat administered, as it has with many the effect of producing a considerable distention. Sugar, on the other hand, is to be warmly recommended as an admirable muscular food, and one which but rarely causes any trouble to the primary digestion.

Closely bound up with the question of diet is that of exercise. There can be no doubt of the efficacy of some form of employment of the muscles. While the patient is kept strictly to bed we may easily, by means of massage, insure sufficient tissue changes in the muscular system through what we may call exercise without fatigue. Its effect must be carefully watched, as in many instances if it be not wisely employed it causes restlessness and sleeplessness, and thereby defeats our efforts for recovery. When judiciously administered it is most soothing to the patient and most beneficial in its results. Later on the masseur (or masseuse) will be permitted to give some passive exercise to the limbs, and here it may be said that the manual treatment of Stockholm is, from every point of view, better than the resisted exercises of Nauheim. At a subsequent period if all goes well the patient may be allowed to begin some active exercises, especially those combined with deep breathing, which is of immense service, both in thoroughly aerating the blood and promoting tissue changes and also by unloading the venous reservoirs and relieving the heart.

It is only within recent times that the employment of cardiac remedies has been based upon pharmacological principles, instead of empirical deductions, and in many respects we are still only on the threshold of exact knowledge. A good deal, however, has been done to render our use of cardiac remedies more scientific than it used to be; while recent additions to the facts at our disposal have, in most instances, proved that the results of practical experience have been of definite value.

In cases of simple cardiac weakness the employment of the salts of calcium has proved, in Gibson's hands, to be of much efficacy, and the clinical use of the drug is now explained by the observation of Lingle, Howell, and Cameron. Calcium cannot start rhythmical contractions in the heart after it has been brought to a standstill; this requires a solution of some sodium salt. But the salts of sodium cannot maintain the action of the heart—it is necessary to employ the salts of calcium in order to sustain rhythmical action. The researches of Cameron show that the salts of calcium have a marked effect in increasing the tonicity of the heart, and they entirely bear out the utility of the salts in the treatment of cardiac weakness. For some years it has been Gibson's custom to use calcium chloride in this way. In the case of those who have any rhythmical disturbances, which appear to be especially the result of interrupted innervation, the combination of bromine with calcium has proved of remarkable value; while in patients, mostly of older age, who have a tendency to degenerative changes in heart and arteries, iodide of calcium is of at least equal importance. Both of these salts can be administered in the form of elixirs, and they may be combined in cases

which seem to require the administration of both halogens.

Nux vomica and strychnine have for long been employed in cardiac failure. There can be no doubt that, from a clinical point of view, strychnine is of great importance when there is a liability to failure of the heart muscle, and it is very largely employed, with the most excellent results, by physicians in general. The arterial pressure indicates comparatively little changes under the influence of this drug, but the rate of the pulse is diminished, and from the investigations of Cameron it is clear that strychnine increases cardiac tonicity except when so much diminution of rate has been produced as to lengthen the period of diastasis. Strychnine, administered hypodermically, produces much more definite effects than can be obtained by internal use. But when there is any particular reason for desiring the influence of a colloid, rather than a crystalloid, in respect of the alimentary tract, one of the preparations of nux vomica may be administered. In many cases of cardiac failure associated with nervous manifestations, strychnine with hydrobromic acid is a valuable combination; Gibson's own experience, nevertheless, has taught him, he asserts, that in many instances of cardiac weakness along with profound nervous disturbances strychnine is not to be recommended. This is especially the case in the tachycardia which attends the cardiac debility following diseases such as influenza, in which a combination of the bromides with digitalis or strophanthus is much more useful. It is rather difficult to explain this, as the employment of strychnine, as a rule, diminishes the frequency of the heart. The only reason which seems to account for the increase of the symptoms in such cases is to be sought in the stimulation of an already irritable nervous system. An interesting fact about strychnine is that when the influence of the vagus has been removed the administration of strychnine decreases tonicity through an increase in the systolic output. This result is not accompanied by any appreciable change in the arterial pressure, but is attended by reduction of frequency. It is extremely probable, therefore, that strychnine, like digitalis, increases tonicity through its action upon certain fibers of the vagus nerve. Another most interesting fact is that an increase in tonicity may occur without any change in maximal, minimal, or mean pressure, as well as in pulse-rate; this is perfectly in harmony with clinical observations, showing that strychnine has a good effect in cases of dilated heart, even when no alterations can be observed with the sphygmomanometer.

The action of digitalis as regards arterial pressure and systolic output has been so often described, and the main facts are so clearly recognized, that little more requires to be made of this aspect of its action. The constriction of the peripheral vessels, the rise of arterial pressure, and the diminution of the pulse-rate are constant features with moderate doses; the systolic output may be increased or diminished, but is more usually little changed—such are facts universally acknowledged. These actions are clearly stated in the best of our standard works on pharmacology, such as that of Cushny. A most interesting discussion on digitalis took place in London in 1910, and the views of Mackenzie and Wenckebach attracted great attention. Since then Mackenzie has published a long series of observations on the actions and uses of the drug.

As regards the action of the drug on tonicity the experiments of Cameron show that digitalis brings about marked increase of tonicity. The therapeutic employment of digitalis in cardiac failure undoubtedly depends very greatly on this increase of tonicity, although its effects on contractility are also of much importance. By increasing tonicity digitalis reduced the size of the cardiac cavities, which do not therefore expand so much during diastole; the residual blood is thus diminished, and contractility is, as it were, allowed to act under more favorable conditions. Stewart has shown, for the dilatation produced by aortic incompetence, that no appreciable amount of blood regurgitates into the ventricle until tonicity has been diminished. This, in itself,

is an admirable answer to those who fear to use digitalis in aortic incompetence, and a complete justification of the views of Balfour.

Strophanthus is, in its effects on tonicity, strictly analogous to digitalis; but, as is now well known, it has much less influence over the peripheral vessels and brings about a smaller degree of vascular contraction. In cases, therefore, in which the arterial pressure is high, while cardiac tonicity is low, strophanthus is distinctly indicated. It has a further advantage in that its action is brought about with great rapidity.

Although adrenalin is not a substance which we are likely to employ for any direct action upon the heart, it is yet so commonly in use for a variety of other conditions that a glance may be given at its effects on tonicity. The observations of Cameron seem to indicate that adrenalin actually lowers tonicity before it affects arterial pressure, but that, after the drug has brought about a general vasoconstriction, it leads to a gain in tonicity through increased intraventricular pressure.

Nitroglycerin has been for a good many years very largely employed, in order to relieve spasmodic contraction of the arteries and arterioles, and it is encouraging to know that this decrease in arterial pressure is attended by elevation of tonicity. In very many instances of cardiac weakness, with or without dilatation, the influence of nitroglycerin and the other remedies belonging to this series is of the greatest advantage. A very interesting point is that the employment of digitalis, in combination with nitroglycerin, receives from the researches of Cameron strong scientific support, the combination of these drugs having a decided tendency to increased tonicity, while the nitroglycerin greatly diminishes the vascular constriction. It has long been known to Gibson that a high diastolic pressure is more serious than an elevated systolic pressure in elderly persons, with a tendency to cardiac failure, and the following remarks made by Cameron with reference to a case of heart failure are of interest in this connection:

"Summarized, the action of digitalis alone is to increase both systolic and diastolic pressures, thus not altering the pulse pressure greatly. Nitroglycerin alone produces a fall in both systolic and diastolic pressures with but little change in the pulse pressure. But a combination of the two secures the increase of the systolic pressure due to digitalis, and the decrease of the diastolic, and especially the mean, pressure attributed to the nitroglycerin, thus resulting in a greater increase of pulse pressure than would be obtained by either drug alone. The patient's condition varies with the pulse pressure, being better when the pulse pressure is large, worse when it is small."

DANGERS AND AFTER-EFFECTS OF ANESTHESIA.

Buxton in the *Clinical Journal* of April 24, 1912, mentions briefly some of the more common complications. In referring to vomiting he believes it necessary for us to trace to its source the origin of vomiting. Vomiting may be either a slight complication, or it may be a very grave complication indeed, leading eventually to death. Vomiting is due to either irritation of the mucous membrane of the stomach arising from the entrance of the anesthetic condensed from its vapor into the stomach or to interference with metabolism—we will call it gastric vomiting—or it may be due to brain conditions, and of course it may arise from renal conditions. When vomiting arises from cerebral or cerebellar conditions it is believed, Buxton thinks upon sufficient evidence, that this vomiting is caused by interference with the circulation in the central nervous system during the prolonged operation. This may be due to the head having been kept at too low a level. We are in the habit of teaching that in order to avoid syncope the head should be kept low. We have now to face the question of the vomiting, and to be told that if the head is too low there will be a greater amount of vomiting. Buxton thinks it is true that unless there is obvious ischemia of the brain, prolonged depression of the head, especially in

plethoric persons, will tend to produce post-anesthetic sickness. And the treatment of it, Buxton thinks, is that as soon as the patient has come through the operation, if he is not greatly collapsed he should be kept fairly raised so that the head may not be subjected to the danger of congestive conditions.

The actual vomiting from the stomach may be due to imperfect preparation of the patient. Take a case of this kind: A patient is starved for a long time. He then has a violent purge, after having been previously constipated, and the result of the purge given immediately before the anesthetic is to produce a very considerable degree of hepatic catarrh. As a result he vomits, and vomits bilious material for a long time. If the patient is carefully prepared, has no purge for two days previously to the operation, and has the bowels properly regulated, such vomiting is avoided. In the case of a person who is known to be inclined to vomit, the best plan is to feed by the rectum for twenty-four hours before the anesthetic and to allow copious libations of hot water for three days before; in this way we will avoid this after-effect. With regard to the renal vomiting, that is a very, very serious condition. It is due, not directly to the anesthetic, but to the operation, and while it is primarily due to the operation it may be also due to too much anesthetic having been given.

Nearly all the after-effects—vomiting, headache, acute mania—result from overstimulation even more than from the anesthetic itself. There has been too much of the anesthetic given. This may arise in two ways: the anesthetic has been given either in too concentrated a vapor, or the narcosis has been kept at the same level throughout a prolonged operation. We have yet to appreciate the fact that in order to remedy or prevent after-effects we must lessen the amount of the anesthetic throughout the operation, and do so in proportion to the actual requirements of the patient and the surgeon. If we do this—*i.e.*, eliminate the anesthetic, which is the crux of the matter so far as the patient is concerned, during the first twelve hours after the operation—we lessen the amount of work which has to be carried out by the lungs, by the kidneys, and by the tissues in general. But further, there is one important question which arises in regard to vomiting, and that is the condition which is spoken of as "delayed chloroform poisoning," or acidosis, the cardinal symptoms of which are restlessness, delirium followed by excessive vomiting, and death within forty-eight hours, as a rule from exhaustion. The most conspicuous symptom is the presence of acidosis, or at least the presence of *B*-oxybutyric acid or diacetic acid in the urine. This puzzling state we find is in many respects similar to the cyclic vomiting in children. In those cases we know that the vomiting is apparently related to changes of diet. Now in the same way in post-chloroform vomiting, we know it follows not only chloroform, but all other anesthetics, and appears to have very little relation to the actual amount of anesthetic taken. Hence we arrive at the conclusion that the patient has died as a result of narcosis, although other factors have been at work. The obvious treatment is to prevent starvation while we combat the symptoms. The old treatment was to give alkalies, but that line of action no longer appears convincing. We know the disease is due to exhaustion of the liver and to damaged tissue, so the treatment is to give glucose, if possible by the mouth, or failing this, by rectal injection; treated in this way, these cases do, as a rule, extremely well.

In conclusion, he impresses upon our memory that anesthetics first produce anesthesia; if they are given in excess, they produce damage to the tissues of the body, and so arise deleterious "after-effects." When after-effects show themselves, seek to ascertain the exact cause and origin of their symptoms, and try to remove the cause and assist nature to regain her balance of power. Remember that a patient's vitality is lowered after undergoing an operation under an anesthetic, and so is extremely susceptible to malign influences such as cold, infection, and so on; hence it is our duty to

protect him from the influence of such deleterious agencies. In this, as in all other cases, prevention is better than cure.

UTERINE HEMORRHAGE AND THE CURETTE.

In the *Lancet* of April 27, 1912, WHITEHOUSE discusses this subject, and in conclusion makes a few remarks on treatment carried out on the lines indicated in his paper.

First, as to the rational treatment of idiopathic uterine hemorrhage, it will be evident that neither ergot nor curetting will effectually control the condition. It can indeed be truly said with regard to uterine hemorrhage that the keystone of the therapeutic arch lies in a correct diagnosis. Uterine bleeding must be considered as a symptom only, and no stone must be left unturned to limit the examination to the pelvic organs. The abdomen must be examined for evidence of hepatic enlargement, the blood-pressure must be accurately measured by a sphygmomanometer, and the condition of the vessel walls ascertained. Evidence of syphilis or other constitutional disease should be looked for, and if possible the calcium index estimated. The condition of the heart, lungs, and thyroid gland must be noted, and if circumstances permit, a bacteriological examination of the uterine blood should be conducted. If the uterus is sterile, and no other cause is found to account for the bleeding, then one may confidently recommend curetting as a therapeutic measure. Individual treatment will, of course, depend upon the condition diagnosed. Thus where the bleeding is due to a high arterial blood-pressure the tension must be reduced by purgation, nitroglycerin, and dieting. Purgation will also have its place in depletion of the portal circulation where hemorrhage is due to hepatic cirrhosis. If the calcium index is low menorrhagia will probably be benefited by the administration of this agent, preferably in the form of the lactate.

In the case of bacterial infections Whitehouse has obtained good results by intra-uterine applications such as peroxide of hydrogen, Churchill's iodine, or protargol. Treatment in these cases must be thorough and prolonged. The curette under such circumstances should, according to Whitehouse, be absolutely tabooed.

Finally, where hemorrhage is due to rupture of degenerated vessels in the uterine wall, hysterectomy appears to be the best and safest procedure. Howard Kelly devised a partial hysterectomy for similar cases, and it was introduced into England by Victor Bonney under the name of "utriculoplasty." So far the operation, in London at least, has received but little support, the general opinion being that if hysterectomy is required to relieve severe bleeding, it is preferable to perform the complete operation.

Such, then, is a somewhat brief consideration of a group of cases which Whitehouse believes are of considerable importance to those of us who are called upon to treat the special diseases of women. If all our patients suffering from excessive uterine bleeding could receive the benefit of a detailed examination before resort is made to the curette, Whitehouse asserts he feels sure that it would lower the 20 per cent of failures referred to in his paper, and help to prevent the operation of curetting from falling into discredit.

BOILED MILK.

The London Local Government Board has issued a report on "The Value of Boiled Milk as a Food for Infants and Young Animals" at a time when some authoritative review of this controversial matter is very urgently needed. The investigations on which this report is based have been conducted for the Board by Dr. Janet Lane Claypon, who has already made herself an authority on this question by research work carried out at the Lister Institute. Germany has been the chief field of her inquiries, and the clinical and experimental material afforded by the clinics of Professor Finkelstein and Dr. Ballin in Berlin has afforded a considerable part of the data on

which the conclusions are based. The report shows evidence of careful work, a wide knowledge of the physiology of nutrition and dietetics, and familiarity with the possibilities and limitations of the statistical method—credentials which are often lacking in those who speak authoritatively on the subject dealt with in the document. In appraising the value of the heterogeneous fragments of evidence with respect to the claims of the rival parties the cue, the motive, and the personal factor of each witness must, like the figures themselves, be regarded as variable, for which allowances must be made.

It is clear that the author of this report has not allowed her judgment to be influenced by the glamour of names or the prestige of authority. Facts, figures, and opinions from all sources have been submitted to a careful scrutiny and analysis. And by this method a number of treasured beliefs in the virtues of raw milk have been weighed in the balance and found wanting. One of the outcomes of this report is to show that when a young animal is fed exclusively on the milk of a different species of animal it is immaterial, as far as the nutrition of the former is concerned, whether the milk is boiled or not. On the other hand, it does make a difference whether the milk on which the young animal is fed is, so to speak, a foreign milk or whether it is derived from an animal of the same species. This is the most striking positive evidence obtained by the inquiry. As regards boiling, however, infants who are fed on milk which has been drawn from the breast of a wet-nurse, and boiled previous to use, appear to thrive just as well as when the same milk is given fresh. Although probably unavoidable, it is unfortunate that the evidence of the weight chart should be the *pierre de touche* of the standard of nutrition, especially when dealing with so delicate a matter as imponderable qualities of milk known as "antiscorbutic." Infants who are fed on condensed milk or patent foods can often show weight charts which put to shame the best results of breast feeding—but such infants are not infrequently rickety and at times scorbutic. The fact is that mere weight, apart from other factors, is but a poor measure of health or nutrition. Minor degrees of scurvy and rickets are very liable to escape notice in dealing with large numbers of infants at public clinics, who are soon lost sight of in after months, but, for all that, they consider that this report clearly proves that vast numbers of infants can be fed on milk which has been boiled or otherwise heated to high temperatures without suffering any of the alleged evils which are imputed to this procedure.

They do not for a moment take the position that all infections and contaminations of milk may be safely neglected if only the milk is boiled before it is consumed, and would deprecate any suggestion that the much needed improvements in the protection of the milk-supply may be dispensed with or postponed because the householder can boil his milk and so escape the principal risks entailed by present conditions. But the moral that clearly emerges from this report is that, since the dangers of boiled milk are so problematical that they may be neglected, and since the danger of infection from unboiled milk is so real, it is wisdom to boil all milk before it is given to an infant to consume.—*Lancet,* April 27, 1912.

TREATMENT OF SEVERE CASES OF DIABETES.

SCHMOLL writing in the *California State Journal of Medicine* for May, 1912, tells us that the key-note of the dietetic treatment is not the qualitative but the quantitative restriction of food. It is not sufficient to give the patient a diet list of foods allowed and forbidden, because every case has a different amount of tolerance to carbohydrate and to proteid. There are also those remarkable cases in which the true carbohydrate is tolerated better than that formed in the destruction of proteid, so that while they may be allowed a considerable amount of carbohydrate food without an increase in sugar excretion, they cannot stand any excess of proteid.

The first step in the treatment must therefore be a determination of the tolerance to these two foodstuffs. In practice, we put the patient on a diet containing 100 to 120 grammes proteid, and then we cut down the amount of carbohydrate from day to day. If the patient becomes sugar-free on a simple restriction of carbohydrate, his case will be easy to handle and the prognosis is good.

It is wrong to interdict all carbohydrate food in every case simply because the patient is a diabetic. There is a certain limit of tolerance in every case, and this must be determined at the outset. When it is desired during the study of the case to give a strictly carbohydrate-free diet, great care should be taken and the change had better be gradual—extending over a few days. The reason is that there is very often an alarming rise in the acidosis at this time, and the amount of urinary ammonia and the intensity of the ferric chloride reaction for diacetic acid should be watched from day to day.

Some diabetics seem to react a little differently to different carbohydrates. For instance, it is known that levulose will occasionally be oxidized so completely that it will not affect the glycosuria, but in the majority of cases it is changed to dextrose and excreted as such. Lactose is also oxidized by some diabetics, while in others the influence of carbohydrate tolerance is so pernicious that milk has to be strictly forbidden.

If the patient does not lose his sugar under simple restriction of carbohydrate, he proclaims his inability to take care of the proteid sugar, and this item must now be reduced to the lowest limits—60 to 70 grammes daily. These cases are somewhat paradoxical in that they will oxidize a good deal of carbohydrate after the proteid is cut down.

It is a good rule, even in the lighter cases, to keep the proteid as low as possible, because this has a tendency always to increase carbohydrate tolerance. Conversely, it is a grave mistake to give any diabetic large amounts of meats and eggs, because they are bound to do harm. When we want to increase the caloric content of the diet, it is fat that we must add, and we may use it freely, since we have seen that it rarely has any influence upon the disease. It is now our mainstay in supplying the caloric needs of the diabetic, and the realization of this point has contributed very largely to the recent advances made in the handling of diabetes and to the more hopeful prognosis which we can now give.

There are cases which do not become sugar-free even after careful attention to all the points suggested above, and in these cases there must be a reduction in the total amount of metabolism. In the theoretical discussion at the beginning of his paper Schmoll shows that one of the salient features in diabetes is this general increase in metabolism, and it must be met by a corresponding retrenchment. It is in these cases that we must use the "vegetable days" of Naunyn, which are really "starvation days," since only some 300 calories are given with a proteid content of 5 to 10 grammes.

Two thousand two hundred to two thousand five hundred calories is generally sufficient to keep the patient from losing in weight and strength. Some loss of weight at the beginning is often unavoidable, especially when the patient has been overfed for some time, but a balance should be obtained as soon as possible. Even the obese diabetics should not be reduced, as none of these patients stand loss of weight well, and when it occurs they often develop an alarming acidosis. There is very little trouble in maintaining the weight after the patient is sugar-free, because under these conditions a diabetic shows a decided tendency to hold his own.

When, after a week or two of careful treatment along the lines laid out above, the patient still shows traces of sugar, it is generally better to rest satisfied for a while rather than to forge ahead and run the risks of acidosis and lowered nutrition. The improvement up to this point will stop the progressive tendency of the disease, and with increased tolerance these traces may disappear of themselves.

Any one can see that we cannot safely or intelligently pursue such strenuous treatment unless we know the caloric value and proteid and carbohydrate content of the diets which we vary from day to day. A record has been worked out in Schmoll's laboratory by Dr. Alvarez, which shows very conveniently the different data from which the progress of the case can be judged. All these facts are later charted together in another table, so that the characteristics of the patient and his therapeutic points of attack can be seen in a moment.

In calculating the value of a diabetic's diet, we must not forget the loss sustained through the excretion of glucose, and, in severe cases, oxybutyric acid. If the patient is excreting 100 grammes of glucose, we must subtract 400 calories from his total, since he obtained no benefit from what was not burned in his body.

Thus far our therapeutic measures are seen to follow very closely along the lines laid down in the laboratory, but we must now enter the realm of empirics.

For a long time it has been known that good results could be secured in some severe cases of diabetes by feeding large amounts of carbohydrate in one single form. Thus, older writers have advocated the giving of cane-sugar; Düring proposed an exclusively rice diet; Mossé had his "potato cure;" and finally v. Noorden discovered the "oatmeal cure." He found that patients who had failed to lose their glycosuria entirely under the strictest dietary might become sugar-free on a diet containing 250 grammes of oatmeal, and after two or three days a return to their former diet would show a great increase in tolerance.

This discovery has been amply confirmed and gives us a new way of handling the dangerous cases in which the acidosis becomes more and more menacing. As seen above, this is due to the almost complete absence of carbohydrate oxidation; and with the burning of the oatmeal starch there is a prompt and decided diminution in the acidosis. The oatmeal diet must be used intelligently, however, if results are to be secured. It must be preceded by at least two vegetable days, as described above, so that the blood may be cleared of the sugar excess and the oatmeal can have a fair start.

On oatmeal days, 250 grammes of oatmeal is given as gruel in which 300 grammes of butter is incorporated. No other carbohydrate may be given in even nominal quantities, or failure will result; the glycosuria will rise and tolerance will fail. Sometimes some vegetable or egg proteid may be given with the oatmeal, but of late Schmoll has obtained better and more constant results by omitting all proteid. Meat proteid is out of the question, as it increases the glycosuria and prevents the action of an exclusively oatmeal diet. After two or three days of oatmeal diet it is well to have one or two vegetable days, before returning to standard diet.

The oatmeal diet may frequently fail for one or more of the following reasons: First, it causes acute intestinal disturbance, which may even bring on coma in a severe case; secondly, it will increase the glycosuria in some cases; and thirdly, it may cause acute fluid retention in the body, the so-called "oatmeal edema." This complication may be avoided by giving theocin at the same time.

The success of the oatmeal diet has been one of the greatest puzzles in diabetes. The theory has been advanced that oatmeal starch has a distinctive composition which allows of its absorption in a way different from other carbohydrates. Another suggestion is that oatmeal contains some substance which favors carbohydrate oxidation either through stimulation of internal secretion or through an action like that of glutaric acid.

SALVARSAN.

PATTERSON in the *Military Surgeon* for May, 1912, concludes as follows in a paper on this subject:

1. While in the majority of cases intravenous administration of salvarsan is probably the best method, the intramuscular injection should by no means be abandoned.

2. The intravenous should be used first.

3. All cases of lues should complete their supposed cure with an intramuscular injection or injections, particularly in cases of more than three months' standing.

4. Mercury should be used regularly in the treatment of syphilis, following up the salvarsan.

5. In tertiary syphilis potassium iodide should also be used.

6. When using the intravenous method, only freshly distilled and sterilized water should be employed to dissolve the salvarsan.

7. In diluting the dissolved salvarsan, only normal saline solution should be used, which has been made with freshly distilled and sterilized water, and chemically pure sodium chloride.

8. Acid solutions should never be used.

9. Salvarsan dissolved and diluted with distilled water only should never be injected.

10. The use of oily suspensions of the drug compares favorably with aqueous solutions in its intramuscular exhibition.

11. Intramuscular injections should not be made into the muscles of the lumbar region, but in the gluteal region high up and to the outside.

12. Lesions of the eye and ear do not contraindicate the use of salvarsan.

THE HYGIENE OF PREGNANCY.

CRAGIN in the *New York Medical Journal* of June 8, 1912, has this to say on this topic:

First, as to the care of the kidneys. There are two certain indications in the care of the kidneys during pregnancy which may well be impressed upon the laity. In the first place the kidneys during pregnancy have more to do than in the non-pregnant state, as they are called upon to excrete waste products both of the mother and child. This excretion is favored by keeping the urinary tract well flushed out with large draughts of water, and it is hindered by anything irritating the urinary tract, such as alcohol.

It is Cragin's custom to advise his patients to drink if possible six glasses of water each day between meals: one before breakfast, two in the middle of the forenoon, two in the middle of the afternoon, and one at bedtime. At the same time he forbids the use of all alcoholic drinks.

Of all the criteria of the condition of a woman during pregnancy, none is so available or so trustworthy as the frequent examination of the urine. It is not enough to have the urine examined once, and if it is found normal to rest assured that it will remain so. Within a week conditions may change entirely, and examination of the urine may show that the woman is in grave danger. The urine should be examined as often as every two weeks, even if the woman is feeling perfectly well, and the woman who does not send regularly to her physician a specimen of her urine is running a risk which, in the present days of enlightenment, is unjustifiable.

The elimination through the skin of the woman during pregnancy is a process which certainly should not be neglected. For this reason frequent bathing is not only a comfort, but a safety. The temperature of the bath may be determined largely by one's habits, and where a woman has always been accustomed to a cold bath in the morning, Cragin asserts he has not found that its continuance during pregnancy does harm. One or two warm baths each week just before retiring, in addition to the regular morning cool bath, will prove of value in increasing perspiration and thus favoring elimination. An extremely cold bath for one not accustomed to it should be avoided. On the other hand, a very hot bath should not be taken.

In the care of the breasts during pregnancy, cleanliness is to be maintained by frequent general bathing. The cleanliness and toughening of the nipples obtained by bathing them daily with a saturated solution of boric acid in 50-per-cent alcohol has seemed in his experience to add greatly to the comfort of the woman during the nursing period which follows.

The elimination of both maternal and fetal waste products, through respiration, and the need of fresh air are often over-

looked by the pregnant patient until she finds herself in a crowded room where the air is bad. She then realizes that she needs fresh air and plenty of it, and that she soon feels faint if she does not seek it. Sleeping with open windows and spending a part of each day in the open air are almost essential to a high standard of health during pregnancy.

During pregnancy the mental condition of the woman is usually that of high tension and unstable equilibrium. There are numerous causes for this. She may have found herself pregnant unexpectedly, perhaps unwillingly. Her plans for the year or two to come may have to be entirely rearranged. She may feel like secluding herself from her friends and abstaining from occupations she enjoys. She may feel wretchedly from the nausea which, although made light of by her friends, is disagreeable enough for her. She may dread the ordeal of her labor; and last, but by no means least, she may be suffering from a form of poisoning resulting from the lack of elimination of waste products from the body, the results of this poisoning showing themselves chiefly in the nervous system.

ALOPECIA: TYPES AND TREATMENT.

DYER writing in the *New York Medical Journal* of June 8, 1912, gives these directions as to the general indications for treatment:

Treatment generally must be based upon the etiology. When related to particular diseases, these must be treated. Idiopathic baldness is usually permanent and without relief. The following may be adopted in most cases:

The frequent washing of the scalp with green soap or tar, resorcin, naphthol, and sulphur soap, and the application of stimulating substances. Of these are to be mentioned chloral hydrate, tincture of jaborandi, spirits of rosemary, cantharides (in tincture and guardedly), tar oils (cade, birch, pine, etc.), castor oil, croton oil (in minute quantity), alcohol, and chloroform. The use of any application should be intelligent: oily substances should be employed when the scalp and hair are dry; desiccating or alcohol preparations when the hair is oily or the scalp greasy. Combinations may be made antiseptic with resorcin (two to five per cent), salicylic acid (two to five per cent), lactic acid (two to five per cent), bichloride of mercury (1 to 1000), or with carbolic acid (not over two per cent), each of which is also somewhat stimulating to hair growth. The use of the high-frequency effluve in some cases of long standing has proved satisfactory.

TREATMENT OF PSORIASIS.

In the *Monthly Cyclopedia and Medical Bulletin* for June, 1912, BERNHEIM gives this advice. He states that whether psoriasis is an infection, a toxemia, or a neurotrophic disturbance does not matter for our present purpose. He briefly mentions a few points not in direct relation with the treatment of the disease:

1. Localization: Extensor surfaces of extremities; head.

2. Duration: Typical course; propensity to relapses.

3. Hereditary influences: Such cannot be denied, as there is frequently an evident predisposition to the disease in members of the same family.

4. Character of the efflorescences: Silvergray scales, large lamellæ, on an easily bleeding substratum.

5. Differential diagnosis: Ready confusion with herpes squamosus, herpes (tinea) tonsurans, lues.

In the last nineteen years he has had under his observation eleven well-developed cases of universal psoriasis which he treated with most excellent results by the method about to be described. In a number of instances relapses did not occur at all; and where they did occur, they were of such small extent as to be almost negligible.

The patient is put into a warm bath (98° F.), to which, if the skin is tender and irritated, chamomile or bran and washing soda are added. The skin is rubbed slightly once or twice with soft soap (sapo viridis)

and washed off. The scales are then readily removed. The patient is next washed with a solution of mercury bichloride (1:1000), and after this the skin is tarred with:

℞ Olei rusci,
Olei fagi pinguis, of each 20.0 (3v);
Alcoholis diluti, 10.0 (3ijss).
M. Sig.: Tar.
(The tar oils must be fresh.)

After the patient's skin has been well tarred, he remains in the bath for twenty to thirty minutes. After the bath the tar is washed off and the affected parts are treated with a paste of salicylic acid and sulphur:

℞ Acidi salicylici, 1.0 (gr. xvj);
Sulphuris præcipitati, 4.0 (3j);
Zinci oxidi,
Amyli tritici, of each 1.0 (gr. xvj);
Petrolati, 25.0 (3vj).
M. Fiat pasta. Sig.: Salicyl-sulphur paste.

Talcum powder is then dusted thickly over the parts to which the paste has been applied.

No treatment is given for the next forty-eight hours. At the end of this time the following ointment is applied to the affected parts:

℞ Pyrogallolis, 3.0 (gr. xlvij);
Adipis lanæ hydrosi, 30.0 (℥j).
M. Fiat unguentum.

Talcum powder is heavily dusted over.

After another two days' pause the following ointment is used:

℞ Chrysarobini, 5.0 (gr. lxxx);
Adipis lanæ hydrosi, 20.0 (3v).
M. Fiat unguentum.

This is put on the affected parts, which are then dusted with powder. Chrysarobin occasionally causes a general dermatitis, and may bring about severe burning and itching; it may, therefore, become necessary to avoid applying the paste to all the affected parts at one time, but to cover them gradually.

In the treatment of psoriasis of the face we should avoid chrysarobin, and substitute another ointment having this formula:

℞ Unguenti hydrargyri ammoniati,
Pyrogallolis, of each 1.0 (gr. xvj);
Unguenti zinci benzoatis, q. s. ad 25.0 (3vj).
M.

Psoriasis of the scalp is best treated by washing with a 1:1000 solution of bichloride of mercury.

In addition to the local treatment, Bernheim prescribes for the patient two kinds of pills according to the formulæ:

℞ Acidi carbolici crystallisati, 10.0 (3ijss);
Ext. et pulv. glycyrrhizæ, q. s.
Fiant pilul. No. C.
Sig.: From 3 to 10 pills daily, taken after meals.

℞ Arseni trioxidi, 0.5 (gr. viij);
Pulveris piperis, 6.0 (3jss);
Acaciæ, 1.5 (gr. xxiv);
Altheæ, 2.0 (gr. xxxij);
Aquæ destillatæ, q. s.
Fiant pilul. No. C.
Sig.: Increase from 1 to 8 or 10 pills daily.

As for hygiene, the patient should be required to take plenty of fresh air and rest; he should not tire or overexert himself in walking or any other exercise. The diet should be bland, consisting of articles such as milk; sweet, fresh butter; cereals, thoroughly cooked; green vegetables, thoroughly cooked, and purées; eggs, omelets; noodles, macaroni; custards, puddings of rice or tapioca; soups made with rice flour, barley flour, lentil flour; stewed fruit, etc. Meat and alcohol should be avoided, at least for some time.

The use of the tar and ointment is ordered only for a short period, whereas the pills should be taken for a longer time.

UNCOOKED VEGETABLES AND TYPHOID FEVER.

The possible rôle played by vegetables in the spread of typhoid fever has not in the past received the attention which it seems to deserve. In the consideration of the epidemiology of this disease investigations were for some time directed mainly to water as the usual agent. This has served a useful purpose in showing that outbreaks of typhoid fever are frequently caused by contaminated water and that a sanitary water-supply is a necessity for the welfare of a community. Then attention was focused on milk, which was shown to be a frequent carrier of typhoid fever infection and a not

uncommon cause of both large and small outbreaks. Later the fact that a certain percentage of those who had had typhoid fever continued to harbor the bacillus typhosus in their intestinal tracts and gall-bladders, and at times also in their urine, was brought out, and it was found that these chronic carriers might be and frequently were the direct or indirect cause of outbreaks of the disease, and that they are undoubtedly an important factor in the continuance of typhoid fever and the occurrence of prosodemic cases. Recently special attention has been given to direct contact with patients, and with soiled bedding, or clothing, utensils, and dishes, and to the part which flies play in the spread of the disease by becoming mechanically soiled with infectious material and subsequently coming into contact with foodstuffs and beverages.

There are undoubtedly other agencies which spread the disease—that is, serve as conveyers of infectious material directly or indirectly. One of these is very probably uncooked vegetables grown in soil intentionally, and at times unintentionally, fertilized with human excreta.

During the last fifteen years various observers have endeavored to ascertain the length of time the bacillus typhosus would live in soil under many different conditions to which it might be exposed in nature. Firth and Harrocks inoculated ordinary soil with an emulsion of the bacillus typhosus. The soil was not otherwise treated in any way except to add rain water from time to time to simulate the natural rainfall. They were able to recover the organism from this soil for a period of sixty-seven days. In soil kept dry and exposed to direct sunlight the bacillus was recovered for twenty days. Levy and Kayser recovered the bacillus typhosus from infected feces which had remained in a vault for over four and a half months, and had then lain as manure in a garden for fourteen days. Robertson inoculated with bouillon cultures of the bacillus typhosus soil at various depths out-of-doors and under natural conditions, and recovered the bacillus after 143 days.

Other investigators have recovered the organism from soil after different lengths of time under various conditions. It has been shown that the bacillus typhosus may survive during a winter in soil, the upper layers of which have remained frozen for at least a part of the time, that it will remain viable for at least twenty-five days in soil dried to the extent that dust is formed, and that the organism will penetrate soil to a depth of eighteen inches when flooded with water and will grow to the surface when buried to a depth of eighteen inches. It may be inferred that these findings represent the average longevity of the organism in soil, or possibly more nearly the minimum, certainly not the maximum.

This suggests forcibly the possibility that salad vegetables grown in infected soil might carry on them the bacillus, in fact that they would in all probability do so. Wurtz and Bourges planted seeds of cress, lettuce, and radishes in soil in pots, then sprinkled the earth with water containing the bacillus typhosus. When the plants sprouted the leaves were examined, and the bacillus recovered from them for three weeks after the earth in which the seeds were planted had been sprinkled. More recently Creel has demonstrated conclusively that the leaves of plants grown in infected soil may carry with them the bacillus. In April, lettuce and radish seeds were planted out-of-doors, exposed to natural conditions as to soil, sunshine, and rainfall. On the second day after planting the seed the surface of the ground was sprinkled with a fecal emulsion mixed with a twenty-four-hour-old agar culture of the bacillus typhosus. After the plants sprouted the tips and leaves were at intervals of two or three days carefully removed well above the ground so that no particles of earth would be taken up. The tips and leaves were then rubbed over the surface of culture medium, or washed with broth and the washings plated. Creel was in this way able to recover the bacillus typhosus from the plants for varying periods, the longest of which was thirty-one days after the infection of the soil, a period, as he states, long

enough to enable certain varieties of lettuce and radishes to mature. From the soil itself he recovered the organism for thirty-five days. It is especially significant that the bacillus was recovered from leaves which to the eye appeared entirely free from particles of soil, and that no amount of washing which it was possible to give to the lettuce leaves sufficed to free them entirely of the organism. As vegetables are usually marketed with particles of soil adhering to them, they must be considered as possible carriers of infectious material wherever it is present in the soil in which they have grown.

This work merits attention because of its bearing upon the practice common in many sections of the country of fertilizing truck gardens with night-soil.—*New York Medical Journal,* June 8, 1912.

RESULTS OF ANTITYPHOID VACCINATION IN THE ARMY IN 1911, AND ITS SUITABILITY FOR USE IN CIVIL COMMUNITIES.

Dealing with this important subject in the *Journal of the American Medical Association* of May 4, 1912, RUSSELL concludes as follows:

1. Antityphoid vaccination in healthy persons is a harmless procedure.

2. It confers almost absolute immunity against infection.

3. It was the principal cause of the immunity of our troops against typhoid in the recent Texas maneuvers.

4. The duration of the immunity is not yet determined, but is assuredly two and one-half years, and probably longer.

5. Only in exceptional instances does its administration cause an appreciable degree of personal discomfort.

6. It apparently protects against the chronic bacillus carrier, and is at present the only known means by which a person can be protected against typhoid fever under all conditions.

7. All persons whose profession or duty involves contact with the sick should be immunized.

8. The general vaccination of an entire community is feasible and could be done without interfering with general sanitary improvements, and should be urged wherever the typhoid-rate is high.

THE CARE OF PREMATURE INFANTS.

DURHAM in the *Archives of Pediatrics* for June, 1912, has this to say on this important subject:

A child born before the twenty-eighth week of pregnancy can live, at most, a few hours; before the twenty-fourth week it may live one to fifteen days; and before the twenty-eighth week usually will die; later than this, with proper care, it will survive. In the period, therefore, between the twenty-fourth and twenty-eighth week of pregnancy, the fetus attains a stage in its development when life and growth are possible if the child is born. Toward the end of the sixth month or twenty-fourth week the average weight of the fetus is 23½ ounces, and its length 11 to 13½ inches; its skin has some fat supply; its hair is growing on the head; its eyebrows and eyelashes are present. At the end of the twenty-eighth week the weight is 41¼ ounces (2½ pounds) and length 13¾ to 15 inches. The activity in such infants is of necessity very feeble, and very special care is required to raise them. Any child born weighing four pounds or under must be considered to be either premature or congenitally feeble, but the exact determination of its age will be uncertain except in so far as its weight and activity are indications. Especially feeble are the lungs and organs of digestion. The cry is weak and whining; the movements are never vigorous; the muscles of the mouth and tongue may be too weak to nurse, and of deglutition too feeble to swallow. Heat loss is so rapid that it is often impossible to maintain the normal body temperature. The important factors to meet the needs of such infants are, therefore, a supply of proper food; the maintenance of body heat by artificial means; and a sufficient pure air supply for the poorly developed lungs.

In the matter of the food supply it may

be stated that it is essential to have breast milk. One has only to remember the difficulties of adapting artificial food to the normal infant during the early weeks of life to realize the practical impossibility of such adaptation in a premature infant. But the child may be so small as to be unable to nurse on account of physical disproportion, if not of physical weakness; or so weak as to be unable to nurse at all; or the breast milk, as often happens, may be lacking. This latter difficulty may be overcome by obtaining breast milk from the excess supply in a maternity ward, or by taking part of the milk from a wet-nurse who is at the same time nursing her own child. Any attempt to obtain a supply by pumping the mother's breast soon fails because of the almost certain cessation of milk secretion in such cases.

In order to maintain proper heat, greatest success may be had with the ordinary home-made padded crib or box, to the four sides of which hot-water bags may be hung, with an additional one under the baby if necessary. The sides must not be high enough to exclude air circulation. The baby is placed in this box, after being wrapped in cotton, and the temperature is watched by means of a thermometer placed in the box; 85° or 95° F. may thus be readily maintained as required. The box should be placed in a well-ventilated room, or in warm weather may be placed out-of-doors. This device has been shown by many pediatrists to be far superior to many of the elaborate incubators. The child should not be bathed in a tub, nor exposed to the room temperature any oftener than necessary. Oil or cacao-butter rubs aid in maintaining weight and in cleansing the skin.

A few statistics in regard to the subject of premature infants will be of interest.

In 2314 births in Sloane Maternity Hospital there were 410 premature babies, of which number 74 were stillborn. There were, therefore, 336 cases suitable for treatment; 85 were treated as infants at term, and 4 died; 145 were wrapped in cotton and not placed in the incubator, and 12 died; 106 were treated in the incubator. Of the latter, 29 died in four days (6 being under seven months' gestation), and 77 survived the first four days. Of the latter, one-third were known to be living after a period of from three months to three years. Five of these babies weighed less than three pounds.

In 1902, in the *British Medical Journal*, is the report of a case of premature infant that weighed two pounds. It was treated in an incubator and lived for ten months, and weighed 6 pounds 12 ounces. It did not survive an attack of bronchopneumonia. In the same journal is published the history of another premature child of 18 ounces (six and one-half months' gestation), treated without incubator, but by being wrapped in cotton. This child, though small for its age, was living at the end of twelve years.

THE ARTIFICIAL PRODUCTION OF PNEUMOTHORAX IN PHTHISIS BY INJECTION OF NITROGEN.

In the *Bristol Medico-Chirurgical Journal* for June, 1912, CHITTY deals with this subject.

He considers what are suitable and what unsuitable cases. In cases in which there is active and advanced disease on both sides it would obviously be useless and indeed harmful to throw all the work upon one lung. Attempts have been made, it is true, to compress the two lungs alternately, but, at any rate for the present, we may regard advanced bilateral disease as a chief contraindication. Extensive disease in other organs, especially intestinal tuberculosis, would also be a bar to operation. Of the remaining cases may be considered as specially suitable:

1. Those in whom the disease is advanced on one side, whilst the opposite lung is unaffected, slightly affected, or quiescent.

2. Those in whom the temperature remains high in spite of the usual methods of treatment, and who show signs of autoinoculation whenever they take any exercise. Chitty here instances one of his own cases, whose evening temperature for at least a year has been from 99° to 100°, in spite of his having spent a long time at a sana-

torium, and of the fact that at home he had been living in a shelter. His temperature came down to normal within forty-eight hours, and has remained at that level ever since. Numerous similar instances have been recorded.

3. Cases which are going downhill in spite of the usual methods of treatment.

4. Early unilateral cases for whom sanatorium treatment is not available. Especially does this apply to the breadwinner of the family.

5. Cases of severe recurrent hemoptysis. One is often in doubt as to which side is giving rise to the bleeding, but in these cases it would be quite justifiable to compress the worse lung, and, if this had no effect, then to aspirate the gas and repeat the operation on the other side.

6. Although most of the recorded cases have been patients suffering from chronic tuberculosis, yet this has not been by any means invariably so, and some cases of acute phthisis have been successfully dealt with.

Laryngeal tuberculosis does not appear to be a bar to the operation. In fact, several recoveries from this form of disease have been recorded. This is easy to understand, as the cessation of cough and of the constant passage of tuberculous sputum over the larynx must be beneficial.

The question naturally arises, "What is the duration of the treatment?" No very definite answer can yet be given. There is little doubt that in advanced cases it must be prolonged for eighteen months to two years; but in very early cases cure has been reported when the gas has been allowed to absorb completely after a few months only. If the treatment has not been sufficiently prolonged recrudescence has been the rule. Under these circumstances it has been found impossible to reproduce the pneumothorax owing to the formation of dense adhesions between the two pleural layers. Therefore when it has been decided to allow the lung to re-expand a careful watch should be kept on the patient. A rise of temperature or any increase in the amount of expectoration would suggest the advisability of keeping the lung at rest for a few months longer. It is wonderful how readily the healthy portions of the lung will expand and fill the thoracic cavity, even after the treatment has lasted from two to three years.

In discussing the results of treatment we must bear in mind that all, or almost all, the reported cases have been of one type, viz., patients suffering from very advanced disease, in whom other methods had proved incapable of arresting the morbid process, and in whom the mortality would most likely have been at least 90 per cent. Many cases have been too recently published for us to be able to judge what their ultimate fate may be, but undoubtedly the initial results have been full of promise. Certainly well over one hundred cases have, however, been recorded in which the treatment was commenced many years ago, and in these there would seem to have been a permanent arrest of the disease in at least 60 per cent. In many of the recent cases immense improvement has already ensued, and patients who a few months back seemed almost moribund now appear to be on the high road to recovery. Where deaths have been recorded during the course of the treatment they have been due, as a rule, to disease in the other lung, to tuberculous disease in some other part of the body, or to some intercurrent malady. In the few cases in which post-mortem examinations have been made, healing by fibrosis has generally been recorded, though this has not always been evident.

One theoretical objection has been raised to the treatment, viz., that when a spontaneous pneumothorax occurs in a late case of phthisis a fatal result is frequent, but Chitty hopes he has shown this to be quite a specious argument in that the two conditions are in no way comparable. In a spontaneous case there is no regulation of the pressure, and no stopping when symptoms of shock arise. Moreover, the pleural cavity is in direct communication with the lung, and is very liable to become infected from this diseased organ.

Chitty hopes he has shown that this method of treatment has a future before it,

even though it be for only a limited number from out the vast array of the tuberculous. There is plenty of room for experiment and observation, and he trusts that many will give this treatment a trial upon certain selected cases. Risk there may be, but who counts risk when life and death are in the balance?

A CASE OF THE HEROIN HABIT.

SYMES in the *Bristol Medico-Chirurgical Journal* for June, 1912, says that a case has recently come under his care in which the patient was supplied by a medical man with a hypodermic syringe and some heroin hydrochloride tablets to be used for the relief of pain, and was assured there was no danger of contracting a habit from its continued use. The patient, a woman of thirty-nine years of age, whilst staying at a well-known spa, was seized with neuritis in the right arm. As other remedies failed to give relief, the doctor gave a hypodermic injection of 1/12 grain of heroin hydrochloride, and directed that the nurse should repeat the dose whenever the pain recurred. The first effect of the injection was to relieve the pain, but half an hour later vomiting commenced and continued during the night. This was late in 1906. As the pain continued, the injections were repeated, first by the doctor, then by the nurse, and later by a relative, and the dose was gradually increased to ¼ grain three or four times a day. During the next two years the patient made ineffectual attempts to break off the habit. In 1907 she learned to use the hypodermic syringe herself. From this time the habit gradually became more confirmed, and the dose increased, until at the time of her breakdown, in October, 1911, she was taking between 4 and 5 grains in the twenty-four hours. The daily allowance never exceeded 5 grains.

With regard to the effects of the drug, Symes describes some of these in the patient's own words, an observant woman of education and refinement. Even after the first dose there was "a feeling of excessive fidgetiness, which seemed to creep right up from the very lowest part of the body (the womb), making me so terribly restless that I could not keep my legs still for a moment. This particular feeling increased maddeningly until I had the injection again, when I felt immediately relieved and blissfully comfortable for about two and a half to three hours." It was the recurrence of these feelings which led to the repetition of the drug throughout. Gradually the patient's health began to fail; she became thinner, less able to take physical exertion, depressed and seedy. The appetite was very poor, and she noticed a peculiar salty taste in the mouth when the drug was withheld; occasionally she had attacks of vomiting, and constipation was most troublesome. The catamenia became at first irregular and scanty, and finally ceased. She had never been a good sleeper, but since taking heroin this had become much worse, and she had recourse to drugs (chiefly veronal) to induce sleep. If the interval between the injections of heroin was too long she "felt wretchedly fidgety and uncomfortable, and people and things seemed to go farther from me as I looked at them, and at times I felt almost light-headed." If the dose was increased too rapidly it gave rise to palpitation and excitement. Amongst other symptoms noticed were increased sensibility to sounds and loss of recuperative power after small injuries, such as cuts; another most troublesome symptom was difficulty in starting micturition. There were never any symptoms of respiratory failure, oppression of breathing, etc. The patient says that whilst taking the drug (although previously extremely subject to colds) she never sneezed or coughed, nor did she ever catch a cold during the whole five years.

The relief given by the injections was instantaneous, but these had to be repeated at shorter and shorter intervals. The patient describes herself as having felt "bucked up," both physically and mentally, keener sensed, calmer, happier in mind, and more ready and able to undertake the exertion entailed by golf, bicycling, roller skating, or walking immediately after taking the drug. There was no marked mental or moral failure. Finally, in October, 1911,

when taking about 5 grains of heroin a day, she was seized with a violent attack of vomiting and prostration with alternately shivering and perspiring. She was unable to move from her bed, and the habit being discovered, an attempt was made to break it off by gradually tapering the dose. Six weeks from the commencement of treatment the dose had been reduced from 5 grains to 4/50 of a grain a day. The chief difficulties had been sleeplessness, restlessness, emotional outbreaks, tachycardia, loss of appetite, and prostration. The patient was at the time walking out-of-doors, and the mental condition was normal. Any attempt to reduce the heroin beyond 4/50 of a grain, although unknown to the patient, gave rise to great discomfort and increased emotional excitement. Symes therefore substituted ⅛ grain of morphine twice a day, and decreased this amount daily. With the substitution of morphine the restlessness disappeared, and by the end of the eighth week hypodermic injections of sterile water only were employed. During the last week of the cure she suffered from a severe cold, the first for five years.

At the present time, six months from the commencement of the cure, the patient is in splendid health, and professes to have no craving for the drug. Sleeplessness, which has been a troublesome symptom throughout the cure, is relieved by the use of adalin, and this drug is still occasionally used.

EDEMA IN DIABETES DUE TO SODIUM BICARBONATE.

The administration of large doses of sodium bicarbonate for the treatment of the acidosis of diabetes may be followed by the development of considerable edema. Widal has observed an increase of weight of 10 kilogrammes in fifteen days due to this cause. At a meeting of the Société Médicale des Hôpitaux of Paris on May 10 M. Marcel Labbé, M. G. Bith, and Mlle. Fertyk communicated an important paper on this subject. They have seen a diabetic, who was given 40 grammes of bicarbonate daily for a week, increase in weight 8 kilogrammes and show edema of the lower limbs. They have found that the increase of weight in such cases is usually rapid and often amounts to 500 to 1000 grammes daily. The increase in weight has a relation to the dose. Under daily doses of 20 to 30 grammes it is slight or absent; under doses of 40, 60, or more grammes it is usually considerable. Patients do not all react in the same way; some are very sensitive to the drug; in others it seems impossible to produce edema. One patient took as much as 50 grammes daily without increasing in weight. On discontinuing the bicarbonate the edema rapidly disappears.

The mechanism of this edema has been disputed. Widal and others, having observed in several cases concomitant retention of sodium chloride, thought that the bicarbonate had an inhibitive effect on excretion of the chloride, the retention of which in turn caused the edema. However, in three cases now reported to the society, in which 40 or 50 grammes of bicarbonate of sodium were given daily to diabetics, analysis of the urine showed no retention of sodium chloride. It seems, therefore, that the retention of the bicarbonate in the body may produce edema analogous to that due to retention of the chloride. Other salts have a similar action. M. Widal has recently shown that large doses of magnesium sulphate may produce edema. The bicarbonate of sodium edema may be produced in other diseases than diabetes. A patient suffering from Bright's disease with anasarca was treated by eliminating chlorides from the diet, and the edema disappeared. As soon as his weight attained equilibrium from 20 to 40 grammes of sodium bicarbonate were given daily. After thirteen days he had gained in weight 3.4 kilogrammes and the legs were edematous. On discontinuing the bicarbonate his weight fell 3 kilogrammes in two days. During this time there was no retention of chlorides. Yet in consequence of the renal disease, he was predisposed to retention of chlorides. On administering chloride his weight rapidly increased and edema of the limbs and face appeared. In five days he

was given 81 grammes of sodium chloride and excreted only 24. On ceasing the administration the excretion of chloride increased and his weight fell.

Pfeiffer has observed that the administration of sodium bicarbonate in patients other than diabetics, and even in health, causes an increase of weight of several kilogrammes. Hayem has reported that in dyspeptics he has seen an increase of weight from administration of the bicarbonate. However, in consequence of the chemical constitution of the body fluids and of alimentary customs, sodium chloride is the chief regulator of osmotic exchanges and the usual factor in edema.—*Lancet,* June 22, 1912.

THE ACTION OF SALVARSAN AND NEOSALVARSAN ON THE WASSERMANN REACTION.

McDONAGH writing on salvarsan and neosalvarsan in the *British Medical Journal* of June 8, 1912, says that taking all the stages of syphilis he has found that three to seven injections are necessary to cure most cases of the disease.

There is no doubt that many cases in the tertiary stage can be cured with neosalvarsan which failed to be cured with salvarsan.

Liable to change as these conclusions may be, McDonagh cannot but admit that the alterations in the Wassermann reaction as the result of treatment are most constant, and when tested at short intervals give a much safer guide to regulate treatment than by saying that just so many injections will be required, or, as the old syphilologists used to teach, that a three years' pill treatment was sufficient for all cases alike.

As there is a possibility of fallacy, McDonagh advises his patients to have a provocative injection of neosalvarsan six months or a year after they have been discharged, and the blood tested forty-eight hours, the seventh, fourteenth, twenty-first, and twenty-eighth day after that injection. McDonagh finally adds that all his cases for some months past have had three to nine injections of salvarsan, given at seven to fourteen days' interval, or three to seven injections of neosalvarsan, given at not more than seven days' interval, with not a single bad manifestation or a recurrence of symptoms.

A CLINICAL STUDY OF ACUTE POLIOMYELITIS.

Under this title PEABODY, DRAPER and DOCHEZ in the *Monographs of the Rockefeller Institute for Medical Research* of June 24, 1912, have this to say as to treatment:

The general treatment of the acute stage of the disease as regards diet, bathing, catharsis, etc., should be carried on exactly as in other infections. As soon as the children show a desire for a liberal diet, it has been given to them. After they have passed the early acute stage, they are apt to have unusually large appetites. During the acute stage, absolute rest in bed is, of course, a necessity in most cases, but even when the children feel weak it is probably wise to keep them quiet for a week or two after the onset of paralysis. At this early period the most prominent indication for treatment is usually pain. In some instances, as we have seen, pain may be spontaneous, but much more frequently it is associated with movement of the limbs, and this necessitates the utmost gentleness and care in moving or turning the child and changing the bed linen. When lifting or moving a patient with marked hyperesthesia, the nurse should try to avoid flexing the neck or the hips, or bending the spine forward, as these are the most painful motions. Not infrequently this pain is so great that the children develop a dread of being touched, and they cry out long before they are actually hurt. The nurse who realizes that their pain may be intensely severe, whose touch is gentle, and whose voice is reassuring, may do much toward preventing this unhappy state of mind. In patients with spontaneous pain or with tender muscles, the weight of the bedclothes may be sufficient to cause discomfort, and a cradle to raise them off the limbs is often a relief. In other cases a light, well-padded splint seems to steady the

limb and to take the strain from unaffected muscles. One of their children used to beg to have the splint replaced when it was taken off.

In general, the most effective simple agent for overcoming pain seems to be heat. This is especially the case in paralyzed limbs which are often very cold and clammy. Wrapping the limb in cotton-wool, blankets, hot packs, and hot-water bags gives great comfort. They have frequently had occasion to notice the effect of cold weather and dampness on these patients, when a sudden change from warm summer weather to a cold rainy day would be accompanied by definite exacerbations of pain. The ward was, therefore, kept at a warm, equable temperature. A certain proportion of cases suffer so intensely that simple measures are not sufficient to control the pain, and drugs have to be resorted to. Bromides they have found helpful in little children. In older patients phenacetine, aspirin, codeine, and occasionally hypodermic injections of morphine are necessary. They have never felt convinced that lumbar puncture was of any therapeutic value. In one fatal case life was apparently prolonged for a short time by means of artificial respiration. Landolt reports a case in which artificial respiration was carried on almost constantly for seventy-two hours. During this period there was a slight return of power in the toes and fingers, but the patient finally died. Theoretically, it would seem that one might possibly tide a person over by artificial respiration until an absorption of exudate allowed the nerve cells controlling the respiratory muscles to resume their function.

During the early part of the disease the most important indication is for complete rest and quiet. When the acute symptoms pass, however, more active treatment directed toward the prevention of deformities and the restoration of muscular function should be instituted. The exact period at which it is best to begin treatment varies, but in general the pain seems to be a good guide. As soon after the first fortnight as the child can bear any movement or handling without pain, massage should be begun. It is important, although sometimes difficult, to distinguish between true pain and the fear of pain which may persist until the child's self-confidence is restored.

Contractures begin to develop early in poliomyelitis, and it is essential that they should be guarded against from the onset. The most common early deformity to be dealt with is the toe drop, occurring from the contraction of the flexors of the toes and extensors of the foot in the absence of normal opposing muscles. Such a deformity is hastened by the pressure of the bedclothes, so that a cradle is useful where it is feared. Sand-bags may be used to support a limb; or a light apparatus, such as a posterior wire splint with a foot-piece at right angles, may be sufficient to overcome the pull of the muscles. Such apparatus must be well padded and the straps applied loosely so that there is no obstruction to the circulation. The danger of the apparatus is that it will keep the limb too quiet and prevent any attempt to use weakened muscles at precisely the period in which both active and passive motions are most to be encouraged. To obviate this, it has been the authors' custom to have the apparatus applied at night only, and to leave the limbs free to move during the daytime.

Massage is a most helpful aid to treatment. They have begun with light massage as soon as the pain would allow, and given it twice daily. Its chief usefulness probably consists in assisting the circulation by replacing the effect of lost muscular activity. Heat, and especially baking, also exerts a good influence on the circulation. With massage, passive motion is used, the rhythmic performance of certain movements stimulating the patient to try to attempt them himself. Of all methods, however, by far the most valuable one is active movement, or muscle training. In attempting voluntarily to use a weakened or paralyzed muscle, the patient can accomplish more for himself than can ever be done for him by any one else. Muscle training is comparatively easy to carry out with adults or children old enough to do what they are told,

but with little children, who by instinct avoid the use of any injured muscle, and try only to accomplish the same result by means of another healthy group of muscles, the problem is more difficult. In one way or another, the child must be made to attempt to use the weak muscles. It is here that the skill of the nurse shows itself. By merely telling the child to move on arm or leg, she accomplishes nothing, and as likely as not merely makes him suspicious and obstinate; but by playing with him, coaxing him, inventing ingenious games, which involve the use of muscles, without his realizing it, and by showing infinite patience and tact, the end is obtained. Frequently the children use their limbs better when they are in a warm bath than when in bed. The excitement of the tub bath and the fun of playing with floating toys makes them forget their disabilities, and they try new movements much more readily than in bed. Probably, also, the heat and buoyancy of the water make many muscular movements less difficult. Some children are ambitious, and from the outset are continually anxious to progress, but with many each new step involves a struggle. One literally has to force them to try to sit up, to try to stand, and then to try to walk. Dr. Charles West discusses some methods of stimulating children to use their paralyzed limbs, and then adds, "I need not say that much care and much patience are needed in carrying out any of these suggestions, and not a little of that intuitive love for children which teaches those who are its possessors how to extract fun and merriment from what might in other hands be a most irksome task."

In the therapeutic use of electricity, they assert they have had little experience. To be of any value, electrical treatment must be given with considerable skill and over a long period of time. The amount of other work entailed by the large number of patients they have had in the hospital left them no opportunity to take up this method of treatment. The general methods which may be of service, however, are summed up in the following sentences from the report of the Massachusetts State Board of Health for June, 1909: "In the early stages galvanism should be used on the nerve trunks and faradism on the muscles, so long as their irritability for contraction is maintained. When the irritability of contraction to the faradic is lost, galvanism should then be used, as having more influence on nutrition. With the returning muscle irritability, faradism should be used, and best by the use of the electrodes over the muscle points so as to obtain actual contraction of muscles rather than by the application of the electrical current to broad surfaces. This serves as a distinct exercise to the muscle during its early stage of weak contraction."

The results of treatment depend to a great extent on the faithfulness with which it is persisted in. Coincident with the absorption of the exudate, improvement is often quite rapid during the first weeks and months; then follows a long period which may be intensely discouraging in its apparent results, a period in which improvement is probably due to muscle training and to the assumption of new functions by the surviving nerve cells. During this period the patient learns many tricks by which surviving muscles may be made to assume in part the rôle formerly played by those which have become paralyzed. A slow recovery often continues for a very long time, and to be sure that the muscles have regained all the power that they are capable of, conscientious treatment ought to be continued for at least a year and a half or two years. The authors have been greatly impressed with the marked improvement which may come after the end of the first year. The problem as to when the case ceases to be a medical one and should be turned over to the orthopedic surgeon is difficult and much discussed. The danger of a too early resort to surgery and mechanical methods of support is that the patient will come to rely too much on these methods and cease developing his muscles to their utmost. Internists and neurologists thus tend to postpone calling in the orthopedic surgeon until they feel satisfied that they have done all in their power. The danger of this delay, on the other hand, is that deformities may set in

which make the corrective problem much more difficult, so that the orthopedic surgeon receives the case at a distinct disadvantage. The best treatment would probably mean a coöperation in which the surgeon would foresee and correct deformities and the internist would protect the interest of the injured muscles.

When one member of a family is taken sick with poliomyelitis, the physician must take what measures he can to prevent the spread of the disease to other members of the family and to the community at large. Strict isolation of the individual case and isolation of those who have been in close contact with it during the fortnight preceding onset are the most efficient measures. This is particularly important in regard to the prevention of contact with children. Attendance at church, school, or other places of public meeting should be forbidden for at least three weeks. As direct treatment for those exposed, urotropin, which by animal experimentation has been shown to have some slight action in destroying the virus, may be given for about a week. Longer administration is not advisable. Nasal and throat sprays or a gargle of one-per-cent peroxide of hydrogen or of a 0.5-per-cent menthol solution should be used, but only for a few days, for their prolonged use is irritating and may make the throat and nasal passages more susceptible.

THE X-RAY TREATMENT OF GRAVES'S DISEASE.

HOOTON in the *British Medical Journal* of June 8, 1912, writes on the *x*-ray treatment of goitre.

Summing the whole matter up one may say that the noteworthy features are the lessening, often rapid, of the nervousness, the dyspnea, the tachycardia, and the tremor; the patient's weight increases, and there is a return, in a greater or less degree, to a normal enjoyment of life.

One defect undoubtedly did, and to a smaller extent still does, exist—namely, the soreness of the skin of the neck, a true radiodermatitis, present as a rule only for a few weeks during the earlier part of the treatment, but unfortunately giving place to a permanent brown stain and patches of dilated capillaries, which to those who wish to wear low-necked dresses is necessarily a great disadvantage. These difficulties, however, are being overcome by filtering out the softer rays which are responsible for the mischief to the skin; and after all, according to Hooton, this is not a great price to pay for relief from a distressing disorder.

RICE IN THE DIETARY OF THE DIABETIC.

The *Medical Record* of June 29, 1912, contains an article by STERN on this subject. He reaches these conclusions:

1. Rice—*i.e.*, the "polished" product of commerce—furnishes substantially nothing to the organism besides an easily digestible starch. Given in suitable amounts this starch is practically all absorbable and ready to serve as a calorifacient.

2. The commercial cereal is therefore peculiarly adapted to supply carbohydrates without any protein or mineral admixture of consequence.

3. This deficiency of protein and mineral substances makes rice an indifferent food so far as the formation of toxic protein products and useless or impossible pancreatic, cardiac, and renal activities are concerned.

4. The mineral and protein deficiency of rice facilitates the reduction of salts and the calculation of absorbable albumin necessary at every stage of the diabetic affection. (The elaboration of proteins from cereals and leguminous seeds by the healthy organism is mostly incomplete; it is impossible, or nearly so, in every case of advanced diabetes.)

5. Rice being nearly entirely absorbable, only a comparatively small quantity of it is needed by the diabetic organism; it is not the purpose of the rice to supply the total food requirement as does v. Noorden's standard oat diet; the cereal may be incorporated with any properly adjusted protein-fat combination.

6. Contrary to the oat diet, rice as a single form of carbohydrate and in suitable combination may be employed by the diabetic for more protracted periods; it may be prepared in a number of different ways and forms that prevent monotony and always furnish a palatable dish for the patient.

7. Sixty grammes of the absorbable starch granule of rice generally produce the antiacetonemic effect of 250 grammes of the but partly absorbable oats in the standard admixture.

8. Pronounced cases of acidosis are frequently suppressed by the ingestion of 100 grammes of rice.

9. The amount of rice requisite to depress the acetonuria does not necessarily increase the intensity of glycosuria. In a large number of cases the glycosuria will even temporarily decline in a marked degree.

10. The modus operandi of rice is different from that of cereals rich in cellulose. Practically all the rice is absorbed and a certain amount is assimilated by the diabetic (this is evinced by the frequent increase in weight and vigor of the patient and the diminished glycosuria and acidosis), while material rich in cellulose, no matter how much albumin and fat may have been added to it, furnishes in effect nothing more than a starvation diet.

PNEUMOTHORAX AS A CURATIVE FACTOR IN PULMONARY TUBERCULOSIS.

SMALL discusses this topic in the *Pennsylvania Medical Journal* for June, 1912. He says as to the selection of cases that it is generally agreed that patients not improving or being cured under rest, open air, and forced diet, those in whom cure is arrested, and those not maintaining the improvement gained under such régime, are the ones to be selected. Generally those unilaterally affected are chosen, though a double involvement is not always a contraindication. The amount of gas injected, of course, varies with conditions met. Usually the first injections require from 500 to 1000 cubic centimeters of the gas. The degree of compression varies with each case and is determined by the manometers connected with the apparatus.

Before attempting to compress a lung, the functional capacity of the other lung and the effect that the increased respiratory demands will have upon it must be carefully estimated. It is not so much the extent as it is the nature and location of the process in the second lung that will determine the advisability of attempting compression. One lung may be compressed more safely when a much greater portion of the second lung is in an old, dry, cicatrized condition than when it is involved in a wet, pneumonic process, and apical lesions are not so dangerous as those situated centrally.

The technique of making nitrogen injections into the pleural cavity is as follows: Choose a spot for making the injection over an area where the breath sounds and resonance are best, in as wide an intercostal space as possible, avoiding the heart, the diaphragm, and the thicker muscles. Forlanini's method is to place the patient so that the selected site for injection comes uppermost, and arrange the arm so as to widen the intercostal space. Disinfect the skin with tincture of iodine and freeze with ethyl chloride. A fine hypodermoclysis needle may then be thrust through the chest wall until the pleura is felt to yield. Connect the needle with the manometer. If there are no excursions the needle is plugged or is in the lung or in a blood-vessel. If for any reason the fine needle is not satisfactory, Murphy advises making a small incision just large enough to admit a medium-sized aspirating needle with a slightly blunted point. As the pleura is felt to yield, air will be sucked through the head of the needle if there are no adhesions. If this sound is not heard the needle is stopped up or in the lung. The needle is then connected with the manometer, and if there are no excursions a new attempt must be made. The safest and most reliable method is that of Brauer, who makes an incision sufficiently long to afford a good inspection of the pleural surface after the tissues are re-

tracted. If the pleura is glistening and smooth and the motions of the lung are visible, he punctures the pleura with a blunt needle carrying a fine catheter with which the pleural layers may be explored. When satisfied as to the existence of the pleural cavity, the needle is connected with the manometer. After the nitrogen has been injected, the incision must be closed by carefully suturing each layer of tissues. The after-fillings are made by using a fine needle without an incision.

The quantity and frequency of the injections vary with each case. When there are no adhesions and the heart action is good, larger quantities at longer intervals may be given. If the heart is weak the pressure should be kept as low as possible and the injections given just often enough to maintain the standard desired. It may not be advisable to raise the pressure much until the heart is found to be equal to the task. When the patient is not incommoded by the pressure, seven or eight cubic centimeters may not be too much. Each case is a law unto itself and the proper standard of pressure must be determined for each individual, and then maintained by giving the proper quantity at the right time. If too much nitrogen is introduced under too high a pressure, the nitrogen may escape back through the track of entry and appear subcutaneously as an emphysema, or it may infiltrate beneath a muscle and lift it up.

One author summarizes as follows: There are hopeless cases of pulmonary tuberculosis in which the patients cannot recover by ordinary methods of treatment under the most favorable circumstances. There are also patients that are unable to hold their recovery after it has been made. In these cases if the lung can be compressed and kept so for a sufficient length of time recovery will usually follow. In fifty per cent of advanced cases treated by compression the patients have been reported as permanently cured. The course of recovery is helpful subjectively. The certainty and precision of the method permit a great deal of liberty, and the sense of security gives buoyancy to the patient.

ACUTE INFECTIVE PROCESSES DUE TO THE STREPTOCOCCUS.

BALL discusses the value of vaccines under this title in the *Lancet* of June 8, 1912.

From the remarks made in connection with various series of cases reported by him it is evident that certain facts can be deduced, although it is impossible to give a criterion as to the value of any particular form of treatment, and especially so when such involves the use of a drug. The grounds on which Ball lays a claim as to the value of vaccine therapy are as follows: (1) The effect that it has on the course of the temperature chart; (2) the prevention of recurrences in conditions in which they are common; (3) the improvement in the signs of the local disease; and (4) the change for the better in the general condition of the patient.

Taking the first of these, there seems to be quite enough evidence to justify the statement that vaccines do have some influence on the course of the fever in a case of acute infection due to the streptococcus, provided that the original lesion has been efficiently dealt with by surgical methods. The best example of this effect is seen in the type of case in which the patient is in a condition of unstable equilibrium, in which it is necessary to apply some extra stimulus to turn the balance in a favorable direction. The result of the inoculation of a suitable dose of vaccine under these circumstances seems to be almost instantaneous, and it oftentimes happens (in twelve cases of his series) that the temperature falls to a normal level, by crisis, within a period of twenty-four to forty-eight hours after a single inoculation. That such should occur in so large a proportion of the cases tends to negative the suggestion of coincidence which is put forward in isolated instances. In the majority of cases the change has not been so striking, but similar results are seen with a second or third inoculation. Even in those in which a prolonged course of injections are required, some influence on the course of the fever can be indicated, for the gradual fall commenced from the time when the

treatment was instituted. The variety of these changes probably depends on different factors. In the first place, it is extremely difficult to acquire an accurate knowledge as to the degree of infection from which the patient is suffering, owing to imperfections in both clinical and bacteriological technique; as a result of this the size of the dose of dead microörganisms that should be injected is difficult to estimate. Yet, again, the virulence of the infecting agent plays an exceedingly important part in the disease, and to a certain extent is responsible for the potency of the vaccine which is used. This being so, the size of the dose of the initial inoculation must necessarily vary with each individual case. Up to the present time we have no reliable means of estimating this most important factor. Taking these two factors by themselves it will readily be realized that considerable discrimination is required in the use of vaccines.

Turning to the second point—namely, the prevention of recurrences in conditions in which they are liable to take place—there is ample evidence to justify the use of this sign as to the value of these agents in the treatment of acute streptococcus infection, for on no less than six occasions in which such conditions were treated the reappearance of the lesions was prevented in every instance as the result of the initial injection; in some of them as many as from eight to ten times have the lesions presented themselves. This surely is a tribute which must be beyond dispute.

Yet, further, in those cases in which a recovery was made, without bias it may be said that in the majority the change for the better depended on the institution of this form of treatment. It is true that on many occasions no effect was observed, but the disappearance of delirium, the sudden interest in environment, the diminution in the production of pus, and the rapid healing of wounds, all speak for themselves. Even in those cases in which a recovery was not made some temporary benefit seemed to be derived, exemplifying the stimulant effect for which these agents are notorious in other conditions than those which are being discussed.

On these points depends Ball's hypothesis that vaccines are of some value as adjuvants to surgical methods in the treatment of acute infections. It is not his intention to urge their value in preference to many other forms of treatment that come into our hands, or to emphasize the fact that in some instances patients who have streptococci circulating in the blood stream, sometimes in large numbers and of considerable virulence, have recovered from their maladies. For although five patients out of nine lived in whom such a condition was present, it is a known fact that such may occur without the adoption of treatment of this type. It is certainly a fact of some significance, but not of so much value as the changes to which reference has been made. Even the finding of microörganisms in large number by the technique indicated does not appear to add to the significance of this sign, for in two instances the streptococcus was isolated from a single drop of blood, yet the patients recovered, whereas it was only demonstrated in 1 Cc. in scanty numbers in others and the patients died, presumably the virulence of the microörganism playing a much larger part in the destruction of the machinery of resistance than the actual numbers present.

Ball then adds a few remarks with regard to the value of serums. In the majority of cases in which use has been made of them the results have been disappointing, an experience common to most observers. Various types have been tried, as already mentioned. The antipyogenes variety certainly appears to have been the most effective in cases in which the streptococcus pyogenes was the microörganism of infection, as might naturally be expected of a serum which is of the autogenous type, or at least the nearest approach to it that we are able to obtain. The changes in the course of the temperature *per se* are very slight, and if occurring at all have only been of a temporary character. At the same time, in the literature many remarkable records can be found, including such conditions as re-

covery from post-mortem wound infections of a severe character, septicemias of various types, and erysipelas. This latter disease is one in which the best results are quoted as having occurred. It is true that many remarkable changes do happen in this condition whatever form of treatment may be adopted. It has been used in thirteen cases that Ball has seen during the last two years, the temperature falling to normal within twenty-four hours in eleven of them. In one no obvious effect was noted, and in the other, which is among those which have already been mentioned, recurrences of the condition were not prevented, and only stopped after the use of vaccine therapy. All of these recoveries were made in lesions of the mildest form of the disease, the severe conditions being selected for vaccine therapy. In puerperal septicemia, again, much use has been made of this form of treatment, but on the whole the general opinion held is that its value is very small indeed.

Certain points of interest have been observed during the course of treatment. One of these was seen when the serum was injected in combination with normal saline solution intravenously. Within from half an hour to two hours as a rule a rigor occurred, usually of a severe character. This seemed to contraindicate the use of this method until it was discovered that the rigor depended on the action of the distilled water used in diluting the saline, for after this was replaced by freshly distilled water the condition was prevented. This is a point of some practical significance. The condition of anaphylaxis is one also which must be borne in mind, for symptoms which are the result of allowing an interval of from two to three weeks to elapse between successive doses of serum may be of a serious nature. None such occurred in Ball's series, although such an interval was allowed on more than one occasion; at the same time, the knowledge that such may occur contraindicates the haphazard use of this agent.

Yet one other point is the absence of any sign of serum disease in any of the cases.

In conclusion, Ball indicates what in his opinion is the ideal method of approaching a case of infection due to the streptococcus.

First, the clinical diagnosis should be accurate to the smallest detail, the signs and symptoms being carefully noted both as regards the local and general condition of the patient. The help of the bacteriologist should be sought for in all cases, however trivial they may appear to be in the early stages, and as soon as it is recognized that he can give some information both as to diagnosis, prognosis, and method of treatment.

Having dealt with the lesion surgically the necessity for the use of the artificial methods of stimulation of the machinery of resistance must be discussed, and if decided on it must be requisitioned as soon as possible.

Serum should be given at the earliest possible opportunity for its action to be effective. It can be used locally as a dressing, intravenously, subcutaneously, or by the rectum. Intravenous inoculation in combination with normal saline solution should be used where it is desired to get a rapid effect. The doses should be as large as 75 to 100 Cc. and repeated if necessary. This should be followed by subcutaneous injections of 50 to 100 Cc. per diem. The type of serum that should be used is that which most nearly approaches the autogenous variety. The serum obtained from the blood of a patient who has recovered from an acute streptococcus infection has been successfully utilized in the treatment of a similarly infected patient on more than one occasion, and still further, friends have been known to artificially immunize themselves against the microörganism causing the disease, and submit to a withdrawal of their own serum.

Following the use of the serum, or in combination with it, a vaccine should be injected as soon as it has been prepared. As a general rule an autogenous agent is preferable for the reasons already given, but it may be replaced by one prepared from a mixture of streptococci of the same type which are known to commonly cause the

type of lesion from which the technique used has failed to isolate it. Moreover, stock vaccines may be used during the preparation of the autogenous agent. Should a mixture of different bacteria be found in the lesion a vaccine prepared from such a mixture is always indicated. With regard to the dosage it is impossible to lay down an absolute rule. There are indications that if a patient is seen in the very earliest stage of the disease, and maintains a good general condition while the focus of infection is still localized, then a relatively large dose of vaccine may be given; but, on the other hand, if the general condition is bad, and the lesion is becoming generalized, then a small dose is indicated as the initial inoculation. In other words, the more acute and the more generalized the lesion the smaller should be the dose introduced. Having obtained no effect as the result of the smaller dose it should be increased gradually until such is reached which will produce the desired reaction. On the other hand, if a harmful effect is observed then a smaller dose is indicated, or even vaccine therapy contraindicated.

If this course be adopted then Ball believes it will be realized that vaccine therapy and serum therapy are at least useful adjuncts to our ordinary methods of surgical treatment, not only in those cases in which these have failed, but as a routine.

THE INFLUENCE OF SODIUM CHLORIDE UPON THE HYDROCHLORIC ACID OF THE GASTRIC JUICE.

FLOERSHEIM in the *Medical Record* of June 8, 1912, says that statements are current that sodium chloride instilled into the human economy acts as a factor in increasing the production of hydrochloric acid in the stomach. Abstinence from salt would therefore be followed by a material diminution of the hydrochloric acid in the gastric juice, while imbibition of it would be followed by increased acidity. It is a generally accepted fact that the hydrochloric acid is derived from the chlorides in the blood circulating in the stomach mucosa. It need not necessarily be the sodium salt that is required, but it is the most serviceable, readily attainable, and easily transformed. If this assumption is correct we should have a method of treatment for increased or decreased HCl acidity of the gastric fluid which would commend itself for its simplicity, its adaptability, and its cheapness.

Again, in excessive HCl, with or without excess of fluid secretion, the most potent, universal, cheap, and efficient remedy, sodium bicarbonate, is an excellent temporary measure. In a number of cases (without carefully searching for the etiology) a cure is effected. In administering the bicarbonate of soda as an antidote we at the same time, according to the above statement, place within the affected area the exciting cause that is believed to bring on this very condition which we are attempting to cure or relieve.

For the past few months experiments have been undertaken to determine the influence upon the HCl of sodium chloride when taken in the stomach by mouth and in the rectum by proctoclysis. From a number of patients, eight were taken for experimental purposes, four in whom the free HCl of the gastric contents registered persistently above 80 per cent, and four in whom the free HCl was observed to be constantly below 15 per cent. In the hyperacid cases salt was omitted from the diet, while in the hypoacids it was allowed to be taken by mouth and a number of times by proctoclysis. No other form of treatment was instituted and the usual mode of living was advised.

In the beginning of the experiments each patient was properly prepared for the ordeal. The usual Ewald test meal was given and routinely examined every fourth day. Five tests were made in each subject. It was constantly noted that in the excess HCl secretion there was no appreciable diminution of the acid content in the aggregate (variations with each test meal were observed); likewise in the low free acid cases there was no conclusive or sharp increase of free HCl secretion.

The reverse experiments were then undertaken—*i.e.*, salt and salines in the cases of excess, and practical exclusion of them

in the subacid cases. Again it was noted that the results obtained did not warrant the assertion that salt per os or saline proctoclysis was followed by increased acid secretion in the gastric juice.

In three of the hyperacid cases bicarbonate of sodium was administered for experimental purposes. In two of the cases the HCl became at each examination materially decreased, while in the other case there was no specific change noted. General states, neurasthenia, diabetes, lithemia, and other metabolic, arterial, or nerve conditions, were neither considered nor treated.

It would seem, therefore, that the introduction of sodium chloride into the system has no special influence upon the production of hydrochloric acid by the stomach.

It may justly be argued that the number of cases taken is small, yet it should be considered that the experiments were made upon subjects taken at random from quite a number without being specifically selected, which would otherwise probably give the unusual occurrence. Floersheim's belief has always been that which has been brought out by these experiments, and in the treatment of deficiencies or excesses of HCl he does not advise a change from the usual in the salt element.

THE EFFECT OF EXTENSIVE RESECTIONS OF THE SMALL INTESTINE.

FLINT *(Bulletin of the Johns Hopkins Hospital,* May, 1912) draws the following conclusions:

As much as 50 per cent of the total small intestine in dogs may be removed without fatal results. The animals may gradually return to a condition of practically normal weight and metabolism when maintained on the favorable diet under good conditions. Resections of 75 per cent and even more of the total small intestine may be survived, but such animals are not liable to show a true recovery—*i.e.,* a return to normal weight with the establishment of a good compensatory process.

At first the animals suffer from a severe diarrhea, ravenous thirst and appetite, and loss of weight, from which they gradually recover until conditions may return to those of a normal animal. They remain, however, extremely sensitive to unfavorable conditions of diet and living.

Metabolic studies on such animals show that there is a marked increase in the excretion of the nitrogenous, fatty, and carbohydrate elements of the food. The elimination may reach 66 per cent of the diet content. After compensation is established, on a rich, easily assimilated diet, digestion goes on as in a normal dog, except for an increase in the amount of intestinal putrefaction, as indicated by the amount of indican in the urine. An increase in the amount of fats in the foods may lead to an increased elimination of nitrogen and fats to a point about 25 per cent above normal. The carbohydrates, on the contrary, are absorbed to a degree considerably above normal after the compensation is established.

The compensatory process consists in a hypertrophy as well as hyperplasia of the remaining portion of the small intestine. There is no regeneration of either the villi or crypts. Computation makes it probable that in favorable cases approximately the original epithelial area of the intestine is restored by the hypertrophic process.

As in animals, about 50 per cent of the small intestine may be resected without much danger of serious consequences in the majority of cases. The resection of smaller amounts may, however, be followed by severe metabolic disturbances, and even inanition and death. Human cases behave in general like the animals. They show similar metabolic disturbances. In one case there was distinct evidence of a compensatory process. No regeneration or hypertrophy has ever been reported in a human case. There are over fifty-eight cases reported in the literature where over 200 centimeters of the small intestine have been resected. The mortality is 16 per cent, which is probably much lower than it should be, owing to the greater probability of successful cases finding their way into the literature.

The metabolic disturbances in human cases bear no definite relationship to the amount of small intestine resected. Five resections of over 400 centimeters have recovered, while death from inanition has resulted from the resection of 284, 289, 300, and 350 centimeters, respectively. Profound digestive disturbances have resulted from the removal of 192 and 204 centimeters of ileum. In human cases, factors like difficulties in measurement, the pathological condition, the total length of the intestine, and the resistance of the patient undoubtedly modify the result, and explain the apparent discrepancies between the amount of intestine resected and the subsequent metabolic disturbances.

The prognosis in human cases should be guarded. Apparently successful resections may, for lack of suitable compensation, succumb ultimately to a slow process of inanition.

The experiments and the series of human cases emphasize the specific function of the three segments of the gastrointestinal tract. Neither the stomach nor colon is able to compensate for the loss of large portions of the small intestine.

Resection of the human intestine is almost never an operation of choice. The surgical rule has been, and will continue to be, a resection of the minimum amount allowed by the pathological conditions. From the metabolic studies, it would seem wise to give these patients a rich and easily assimilated diet, poor in fats and relatively rich in carbohydrates.

THERAPEUTICS OF SOME SKIN DISEASES.

HARDAWAY (*Journal of the Missouri State Medical Association,* May, 1912) notes that there is very little trouble in killing the itch mite with sulphur or other parasiticides, but it is sometimes rather difficult to cure the patient's skin after he has been cured of the scabies. In other words, the treatment is generally by far too drastic, and results in a severe dermatitis with, perhaps, great suffering, and from which the patient may be weeks in recovering.

In practice he commends the following plan:

The patient is directed to take a hot bath at night with moderate frictions of green soap, preferably Bagoe's; on retiring he is to apply the following ointment, and to repeat it morning and evening for three days—that is, for six rubbings altogether:

℞ Sulphur præcipitati, ʒiij-vj;
Balsami Peruviani, ʒj;
Vaselini, ℥iij.

M. S.: Rub in one-half ounce night and morning.

The druggist is ordered to furnish the patient with a half-ounce box as a measure.

The salve should be well worked into the skin, particularly in those parts where the eruption is most profuse. The face should be carefully avoided; in fact, the hands should be washed after these manipulations to avoid any contact of the sulphur with the face or eyes. It is best that the patient should put on fresh underclothes and lie between clean sheets before beginning the treatment, but he should make no change until the course is over.

If the treatment has been begun at night, the sixth, or final, rub will occur in the morning; at bedtime a second hot bath with green soap frictions is taken, the patient gets into clean clothes, and his bed-linen is renewed. For perhaps a week longer a small amount of the same salve may be rubbed in at night at itching points. In the pruritus, if general, a sort of habit pruritus, a zinc lotion with a small amount of carbolic acid may be prescribed. It is absolutely essential that the underclothing and sheets be boiled, else reinfection is more than probable. The outer garments may be ironed with a hot iron.

If the ointment is not properly prepared—that is, absolutely free from all grittiness—it will do more harm than good, and this is true of any kind of salve that may be ordered, but particularly true of salves containing sulphur. The physician should himself see to this important matter.

Sycosis vulgaris, or folliculitis barbæ, is an extremely obstinate disorder, and in

spite of the *x*-ray and vaccinotherapy and the older local applications, many cases resist all of our efforts to bring about even temporary amelioration.

So soon as the acute symptoms have subsided, all authorities agree that shaving daily, or at least every second day, is a *sine qua non* of successful treatment. In treating sycosis it is necessary that the ordinary shaving brush and soap be discarded, that a cream rubbed in by the fingers should be used instead, and that the razor, etc., should be thoroughly sterilized. If these precautions are not observed, reinfection is bound to occur, and our best efforts are wasted.

In sycosis of the upper lip it is of course necessary to treat any nasal discharge by appropriate applications.

In subacute or chronic types of sycosis, Rosenthal's paste gives very good results:

℞ Acidi tannici, gr. lxxv;
Sulphur præcipitati, ʒijss;
Zinci oxidi,
Pulv. amyli, ää ʒiij;
Vaselini, ʒijss.
M. S.: Apply twice a day.

It may also be mentioned in the interest of asepticism that the paste should not be taken out by the patient's finger, but removed by a bit of stick or tooth-pick, and then applied to the face with the finger, and smeared on in a thin layer without rubbing.

Sometimes this paste, even modified in this way, is too thick, and should be softened with a little oil of sweet almonds.

Impetigo contagiosa was at one time almost entirely confined to children, but it is now seen far more frequently among adult males, who get it from the barber shop, where it has found an apparently permanent lodging place.

In the interest of the public health the patient should not be allowed to return to the barber shop, but should shave himself, using the same precautions mentioned above.

Almost any weak parasiticide is effective, but it is well to remember that the crusts of the lesions should first be removed, and the salve thoroughly applied.

In a considerable number of instances carbuncles find their origin in the barber shop. When we recall the intimate contact of the barber with his subject, and the usually utter neglect by the former of surgical cleanliness, it is not difficult to understand that there exist many opportunities for infection. It is a noteworthy fact that women, who do not frequent barber shops, rarely suffer from carbuncles, although, of course, they are not altogether immune. In the majority of cases in men the carbuncles occur mostly on those parts of the body most exposed to infection—*e.g.*, the nape of the neck, and not so infrequently the bearded face.

It is equally true that chronic furunculosis of the back of the neck is due, in many cases, to the barber's fingers and the utensils of his trade.

Acute attacks of urticaria are usually due to some irritating food, or some food for which the patient has an idiosyncrasy, and should be treated by giving an emetic and later an aperient. When sour fruit is the cause of the outbreak Whitfield gives at once 30 grains of calcium lactate in 2 ounces of anise water.

There is a treatment of great service in those cases of acute urticaria that are kept up by repeated exacerbations, last for several days, and induce the most exquisite local and general suffering. Internally it consists in the administration of 5 or 10 grains each of powder containing subcarbonate of bismuth and carbonate of magnesium every three or four hours, coupled with the liberal drinking of Vichy water, which should be fortified with a pinch of sodium bicarbonate on each occasion that the Vichy is drunk.

The local application of menthol, carbolic acid, tar, etc., gives at least temporary relief. When carbodlic acid or the tincture of mineral tar is used, it acts best when sprayed on with an atomizer:

℞ Phenolis (vel. tinct. picis mineralis), ʒij;
Glycerini, ʒss;
Aquæ, q. s. ad ʒxvj.
M. S.: Mop on with a rag or use as a spray.

A prescription containing menthol and carbolic acid added to zinc lotion (non-sprayable) is appended:

℞ Mentholis, ʒj-ij;
Alcoholis, q. s.;
Phenolis, m. xx-xl;
Zinci oxidi, ʒiv;
Pulv. calaminæ præp., ℈iv;
Glycerini, ʒij;
Liq. calcis., ʒij;
Aquæ, q. s. ad ʒviij.

M. S.: Mop on with rag.

McIntosh's cream is sometimes better borne than any form of lotion:

℞ Bismuthi subnitratis, ʒij;
Zinci oxidi, ʒss;
Glycerini, ʒiss;
Phenolis, m. xx-xxx;
Vaselini, ʒvj.

M. S.: Apply with finger or brush.

DIAGNOSIS AND TREATMENT OF SCIATICA.

WATSON *(British Medical Journal,* April 27, 1912) in his classification of sciatica divides the affection in the following manner:

A. Primary group: (1) Sciatic neuralgia. (2) Sciatic perineuritis. (3) Sciatic neuritis.

B. Secondary group.

The primary group includes sciatic neuralgia. This is supposed to be a functional trouble not associated with definite inflammatory change in the nerve trunk, the condition being purely functional. It occurs most frequently in flabby, anemic, debilitated women, being apparently an expression of nervous exhaustion. Occasionally it is associated with dysmenorrhea, or irregular menstruation. He has seen it alternate with facial neuralgia. The pain is intermittent and the patient may be quite comfortable between the attacks.

Sciatic perineuritis or neuritis is a disease of adult life, and in the writer's experience four times as common among men as women. There is almost invariably a gouty or a rheumatic history. In fully developed cases there is muscular atrophy, paresis and reactions of degeneration are present, with diminution of tactile sensibility, areas of anesthesia and hyperesthesia, tinglings, pins and needles, formication, etc.

The exciting cause of the hyperacute attacks is usually exposure of a limb to cold and wet.

The secondary group of cases includes all those in which the condition is due to involvement of the sciatic nerve, by pressure or the spread of inflammatory processes. Hence the importance of making a complete and systematic examination before diagnosing primary sciatica. It is stated that a rectum overdistended with scybalous masses sometimes exerts sufficient pressure to give rise to sciatica, but whether this be so or not, it is at any rate quite sufficient to aggravate the condition if already present. It includes those cases of sciatica due to tuberculous or osteoarthritic disease of the spine, bones of the pelvis or hip-joint.

As to treatment, rest in bed is essential and a water-bed is advisable, the sheets being either of wool or cotton and not of linen. Woolen socks and pajamas should be worn. The author usually fixes the limb with a long Liston splint, which adds greatly to the comfort of the patient when he has become accustomed to it, and does away with the startings, which are such a painful feature of the disease. Should this prove unsatisfactory, it should be slung in a fracture cradle. The limb should be kept very warm, preferably swathed in cotton-wool. A dose of calomel should be given, followed by a saline in the morning. Salicylates in combination with the bromides and tincture of gelsemium answer well. Aspirin appears to have a specific effect in relieving the pain of fibrositis; and pyramidon, exalgin, acetanilide, and phenalgin are worthy of mention. Potassium iodide is a most valuable remedy, more particularly in chronic cases, especially when combined with the glycerophosphates. Tonics (iron, arsenic, strychnine, etc.) are very necessary when the acute symptoms have subsided.

Regarding local treatment, many pin their faith to fly-blisters; the disadvantage of these is that if not effective they interfere in a measure with the adoption of other methods of treatment. Hot linseed

poultices, antiphlogistine, a canvas bag containing mustard bran, electra cloth applied along the course of the nerve, are all good methods of counter-irritation.

Anodyne colloid is excellent for relieving local pain, and morphine is given when required. Cocaine is extremely valuable administered hypodermically in doses of 1/10 to ½ grain. It should be injected at the seat of pain, but not into the nerve. The balneological and electrical treatment receive detailed attention. High-frequency and sinusoidal current are indicated without very clear indications as to the selection of each, as are massage and douching and passive movement. Stretching is advocated as a last resort. As to further treatment, the patient is especially cautioned against sitting on a cold seat of a draughty water-closet; indeed, he is advised to use a felt cover.

SALVARSAN AND THE WASSERMANN TEST IN SYPHILIS.

HEIDINGSFELD (*New York Medical Journal,* May 4, 1912) concludes that though salvarsan is not an unfailing remedy, it is by far the most effective present-day agent which we possess for the treatment of syphilis. It effects an apparent clinical cure, with negative Wassermann reaction, in about 80 per cent of the cases treated. A fair share of the remaining 20 per cent, with the aid of mercurials and repeated administrations, give promise of still proceeding to a negative Wassermann test in due course of time. Salvarsan fails utterly in probably more than one per cent of cases.

From the writer's personal experience, salvarsan cannot effect any material harm and can safely be administered in ambulatory practice; the administration of salvarsan has not been followed by complications on the part of the ocular and auditory apparatus, with possibly one exception. In this instance it was probable that syphilis and not salvarsan was the causative factor, inasmuch as the Wassermann test remained strongly positive in character. Readministration of salvarsan did not aggravate but apparently cleared up the condition. The Wassermann complement fixation is the oracle and mentor in syphilis diagnosis and therapeusis. The diagnosis and treatment of syphilis without Wassermann control and other specialized aid must be unscientific, and in a large degree unsatisfactory in character.

CAMPBELL and PATCH (*Canadian Medical Association Journal,* May, 1912) as the result of two thousand reactions carried out in the last two years, state that they have never obtained a positive in non-syphilitic cases. Boaz in his series of 1064 cases obtained only one positive, a case of scarlet fever which was transitory, this being but one out of 66 cases of scarlatina.

In the primary stage the reaction is found on an average between two and three weeks after the appearance of the primary lesion, or six or seven weeks after infection. It is advised to make frequent serological examinations in cases of supposed chancroids.

In a considerable number of cases syphilis has been thus diagnosed before the appearance of secondary symptoms. At times true chancroids exhibit a suspicious induration. In the absence of the spirochætæ a persistent negative reaction enables us to eliminate syphilis. The period of secondary lesions gives practically 100 per cent of reactions. As to the value of the negative reaction in doubtful cases, it was formerly believed, and is still held by many, that a negative reaction is valueless. Untreated cases, resembling secondary syphilis, and giving a repeated negative Wassermann reaction, are in all probability not syphilitic.

In tertiary syphilis the reaction is practically a constant one in untreated cases. Hence the persistent absence of reaction in such cases of presumably tertiary syphilis renders the diagnosis of spirochætal infection highly improbable.

In latent syphilis only a positive reaction is of any consequence. The older the syphilis the more difficult it is to eradicate it. The rapidity of the disappearance of reaction varies with the rapidity and efficiency of treatment. The more intense the reaction the longer it takes to disappear. The older the syphilis the more difficult it is to eradicate it. The shortest time of disappearance

of a positive reaction has been, in a primary case, two weeks. The average time taken for the disappearance of the reaction is between five and six weeks after salvarsan treatment.

The Wassermann reaction seems to show that salvarsan is more efficacious than mercury, and that potassium iodide has little or no influence upon a positive reaction.

A positive reaction is a symptom of syphilis, and must be treated like any other ordinary clinical symptom if results are to be achieved. The findings of Boaz from an experience of recurrences have shown this in a most striking manner; seventy-four cases of syphilis which had been treated until symptoms disappeared and the reaction became negative, and on whom serum examinations were made regularly, later developed positive reactions. One group of twenty-four was left without treatment, while the larger group of fifty was treated immediately. Of the treated cases only three developed any clinical signs, these subsiding quickly during the course of treatment. All the untreated cases developed clinical signs within a period of one and a half months.

A positive reaction in the early latent period of syphilis is therefore regularly followed by a clinical recurrence. In some cases reaction and recurrence are coincident, while in a few recurrence does occur without a positive reaction, but for the most part the positive reaction appears before the recurrence. If one treats the patient as soon as the positive reaction is shown, the clinical recurrence can be prevented.

In the latent period, when the lesions are apt to be found in the internal organs, it is not so easy to prove the coincidence of reaction and syphilitic lesion.

What part should the Wassermann reaction play in directing antisyphilitic therapy? We have seen how valuable it is in the control of treatment. Are we justified in basing our treatment on the behavior of the Wassermann reaction? Up to the present time the best method of treatment has been the chronic intermittent. Are we justified in discarding this well-tried method for the newer biological method of Citron? Briefly, this therapy, which has numerous adherents, consists in treating a case of syphilis intensively till the symptoms and positive reaction disappear. Examinations of the blood serum are made at regular monthly or bimonthly intervals, and subsequent treatment is made dependent upon the Wassermann reaction, or, it goes without saying, on the presence of clinical symptoms. Should the Wassermann reaction become positive, with or without symptoms, treatment is reinaugurated and continued till the reactions and symptoms disappear. The routine of serum examinations is then continued. Should the reaction remain continuously negative for twelve months, without any clinical symptoms developing, the patient can be declared cured.

It seemed to the writers therefore, in view of their present still limited knowledge of syphilis, that it would be more practicable, more advisable, nay, even imperative, to treat every case of syphilis in the chronic intermittent and intensive manner for two years at least, whether with salvarsan, with mercury, or the two combined, later applying the method of Wassermann control. If a patient so treated shows no symptom and a negative reaction over a further period of twelve months or more, he can be declared in all probability cured, though one is not yet justified in making such a definite assertion.

THE PARASITE OF CANCER.

BUTLIN *(British Medical Journal,* April 27, 1912) in his third lecture upon the working theory of cancer states that if there be one thing which is more clearly proved than another in relation to malignant disease in the course of the last thirty years, it is the wonderful improvement in the results of operations for cancer. Wide and early operations, adapted to the pathology of the particular variety of malignant disease in each particular part of the body, have been attended with very great success. Nor is this to be wondered at; for the tumor is the manufactory and the storehouse of cancerous cells. And even in those cases in which the cells have begun to migrate, it is most desirable to get rid of

the chief source of cancer cells. The resistance of the host has a much better chance of contending successfully with scattered cells, perhaps not yet firmly established where they lie, after the removal of the tumor. Indeed, he had thought for a long time past that if a "specific" against cancer were discovered it might even then be very desirable to remove the primary lesion– the tumor.

It will be noted that, in connection with "wide and early operations," it is suggested that the operations must be "adapted to the pathology of the particular variety of malignant disease in each particular part of the body." For thirty years he has urged this. But it is not yet by any means generally accepted or acted on. Because a particular scheme of operation is successful for a particular variety of cancer of one part of the body, a scheme as nearly like it as possible is recommended for a different variety of cancer in another part of the body. This method of reasoning by analogy has led to very serious errors in the scheme of operations. The operative treatment of cancer of the breast has been taken by a large number of surgeons as indicating the ideal which should be aimed at in operations for malignant disease of all parts of the body. It includes two very important features—the removal of the entire breast, and the removal in a continuous mass of all the tissues between the breast and the axillary glands. The success which has attended operations for cancer of the breast has led many persons to believe that precisely the same principles should be applied in every operation for cancer in which it is possible to apply them. Not many years ago there were distinguished surgeons who insisted that the entire tongue should be excised in every case of cancer of the tongue. For quite a number of years there were surgeons and laryngologists in the United States and on the Continent who removed the entire larynx in every case of cancer of the larynx, whether intrinsic or extrinsic, whether large or small.

Butlin thought the "entire organ" craze had by this time died out, except for such organs as the breast, ovary, testis, etc. But the removal of the tumor, the associated glands, and the intervening tissues in one continuous mass still possesses great attraction for certain surgeons. It is recommended as a routine operation in cases of cancer of the tongue, in spite of the fact that it seriously adds to the danger of the operation and impairs the powers of speech and mastication. It is quite unjustified by careful observation and comparison of the results of operations. Butlin thought he had recently seen it recommended for cancer of the lower lip, for he has seen some ghastly pictures of quite up-to-date operations on the lower lip; but he supposes they refer to very extensive primary disease of the lip.

Some of these operations are recommended on the microscopical findings of some of the cases in which continuous sections have been cut from the tumor to the glands. Cancer cells have been found in the intervening tissues, and the conclusion has therefore been drawn that the intervening tissues ought to be removed in every case, in spite of the much greater danger to life from the operation and the much greater permanent crippling of the patient. Fortunately, this routine, which has been particularly urged in the treatment of cancer of the tongue, has not been adopted by the majority of surgeons.

The tumor of the tongue and the associated glands have been separately removed, and the results have been such as to justify separate removal as against continuous removal. These cases and other similar cases in other parts of the body clearly show that every cancer cell or group of cells which the microscope discovers do not develop into tumors, even when they seem to have made good their footing in the tissues at some distance from the tumor. Butlin states that he has been so impressed with the danger of trusting implicitly to microscopic findings and planning operations on them that he has ventured to lay down the axiom: "That if an operation does not fulfil the requirements of pathology and is,

nevertheless, exceedingly successful, the pathology which relates to it must be revised; either the observations are incorrect, or the deductions which are drawn from them are not justified."

PNEUMOCOCCAL PERITONITIS IN CHILDREN.

BARLING (*Practitioner*, April, 1912) observes that the body is more susceptible to the invasion of the pneumococcus in early life than in later years. Although it can be demonstrated in the nasopharynx, the mouth, and alimentary canal in numbers of healthy individuals at all ages, yet the pathological conditions induced by it otherwise than in the lungs or pleura are rare in adults; in children, however, in addition to the frequency with which the lungs and pleura are attacked, it not infrequently gives rise to lesions of the joints, epiphyses, meninges, peritoneum, pericardium, middle ear, or subcutaneous tissues. These conditions are sometimes multiple and often fatal, and indicate a pneumococcal septicemia. Such a general infection is rare in adults, their greater resistance enabling them to localize the invasion of the organism to the primary site of infection, usually the lungs.

Pneumococcal peritonitis occurs with sufficient frequency to make it a factor of real importance in the differential diagnosis of the acute abdomen in the child, and inasmuch as the onset may anticipate or be independent of any pulmonary lesion, the problem of diagnosis is still further complicated.

Barling states that in a series of 27 laparotomies for acute abdominal inflammatory conditions in children under the age of twelve, he has met with three cases of pneumococcal peritonitis. The incidence is greater in the female than in the male. Of 234 tabulated cases there were 62, or 27 per cent, males; 172, or 73 per cent, females. Of Barling's 28 cases post-mortem examinations were performed in 18. In only one was any macroscopical lesion found in the intestine. In this case two small tuberculous ulcers were present in the lower part of the ileum. In two other cases marked swelling of Peyer's patches and the solitary follicles was present. The only theory that will explain the many features of the disease and account for the wide-spread and diverse lesions that are associated with it is to regard the infection as a septicemic manifestation.

Out of 28 cases, one or both lungs were affected in 19, and one or both pleural cavities were affected in 19. In other cases either the lung or the pleural cavity was affected, but not both. There were six pericardial involvements, and in these cases there was a wide-spread infection involving the lungs, one or both pleural cavities, the pericardium, and the peritoneal cavities. All were fatal. In a certain proportion of cases the peritoneum only is attacked and no lesion is present in the lungs or elsewhere. Pain is usually the first symptom complained of. This indicates an inflammation of the peritoneal surface of the bowel. Diarrhea comes on a few hours later as all the coats become involved in the inflammatory process, and so would appear to be a result of the peritoneal infection rather than a causative factor.

The appearance presented by the peritoneal cavity after infection with the pneumococcus is very characteristic. The bowel is inflamed and distended, and the coils are lightly glued together by the roughening of the peritoneal surfaces and by the fibrinous exudate lying on them. The infection is wide-spread, and there is a general diffusion throughout the whole peritoneal cavity of the characteristic exudate, consisting of a serous fluid portion, with large fibrinous or fibrinopurulent greenish-yellow flakes floating or lying in it.

In the onset of pneumococcal peritonitis three different types may be recognized: First, the very acute cases characterized by diarrhea, vomiting, and severe abdominal pain, with rigid, tender, distended belly. Seven of the 28 cases belonged to this class. Three died and four recovered. The next class included those in which simultaneously, or almost so, with the onset of the peritonitis a pneumonia develops. Such patients present well-marked abdominal signs and a pneumonia of one or both lungs.

Fourteen out of the 28 cases belonged to this type, and of these only one recovered.

Possibly this case should have been placed in the first category, as the lung signs were very indefinite though the respirations were 40 per minute.

In the third category may be placed those cases in which the septicemia is of a more chronic type. Often pneumonia has been present some weeks previously; following this the patient has gone down-hill, and collections of pneumococcic pus have appeared in one or other pleural cavity or peritoneum. Such cases may in turn develop an infection of both pleural sacs, and following this a peritonitis. These cases are most suitable for vaccine treatment to shorten the duration of disease and to prevent the recurrence of residual infections. But one of the seven cases belonging to this class recovered.

Pain is usually the first symptom, which is severe, general, and persistent. Occasionally it becomes localized to the umbilicus and right iliac fossa. It is followed by diarrhea, which may persist for several days. The abdomen rapidly becomes generally tender, immobile, and rigid; later on these signs tend to become most marked in the lower part of the abdomen, and often the right iliac fossa is especially affected. There is often dulness in the right or left flank, and a feeling of fulness as soon as the examination is made. Fever is present from the commencement. There is rapid wasting. Leucocytosis is generally absent after the first day or two, and in very acute cases there is no increment of leucocytes throughout the illness, all resistance seems paralyzed, and the patient dies without reacting in this manner. On or about the third day the leucocytes begin to jump, and may continue until they are very high. In cases that pass on to the subacute stage the effusion localizes itself to one part of the abdomen, which remains tender and resistant, the patient wastes rapidly, diarrhea persists with occasional vomiting, and a high leucocytosis is present. In not a few cases differential diagnosis from appendicitis is impossible; but the early and diffuse rigidity and tenderness are suspicious signs, and if these are accompanied by initial diarrhea there is a strong suspicion that the case is one of pneumococcal peritonitis.

Looking to the septicemic nature of the infection, the mortality will always necessarily be high; in the series of 28 cases under review six recovered and 22 died, a mortality of 79 per cent. The type of case in which the best prognosis can be given is that in which the peritoneum only is attacked and there is no sign of involvement of lung or pleura; four out of seven of such cases recovered. All the cases that recovered had been operated on, and none recovered that had not been so treated. These latter, however, include all the worst cases in which the peritonitis symptoms were overshadowed by the general septicemia. Very few of the cases were operated on as early as they should have been, and earlier operation will undoubtedly save a few more cases, for notwithstanding the general septicemia the powers of resistance of the body will be aided by early evacuation of any of the local collections of pus, whether in the pleura or the peritoneum. In one case which recovered both the left pleura and the peritoneum were infected, but inasmuch as the patient was under treatment for the empyema at the time of onset of the peritoneal infection, the abdomen was opened earlier than in any other case in this series, and the patient recovered after a long illness. All cases in which the pericardium was infected proved fatal.

Success in the surgical treatment of the various forms of septic peritonitis depends on our ability to remove and drain the local lesion which has started the condition. The infection is first local and then generalizes throughout the peritoneal cavity, and later occasionally becomes septicemic. In pneumococcal peritonitis the condition is septicemic from the first. Incision and drainage, however early performed, will fail to relieve in many cases, and the mortality will always be high. Nevertheless, free drainage of all collections of pus, whether in the pleural sac or in the peritoneum, will aid the defensive powers of the body against the infection. The earlier this is done after the first manifestation of symptoms the better. In the 18 cases operated on in this series, all but two had marked abdominal symptoms for more than forty-eight hours,

and three over a week, before operation. The two early cases both arose in hospital; one of these recovered, in spite of having a right-sided pneumonia and empyema as well as the peritonitis.

Acting on the general lines that have been so successful in lowering the mortality of septic peritonitis, incisions should be made in both flanks and in the middle line above the pubes, tubes being placed in the pelvis and loins. No wiping or irritation is done; such procedures remove not only the infecting organisms, but sweep away all the defensive powers of the peritoneum, increase absorption, and prolong the operation unnecessarily. The operation should be done as speedily as possible and the patient put back to bed in the Fowler position. Saline solution should be given freely, by the rectum by continuous proctolysis if possible, or failing this, by the intravenous method. Nothing should be given by the mouth except a little water, and all aperients should be withheld till some days after operation.

The treatment of pneumococcic infections by vaccines has not met with that success which at first sight might be expected from such methods.

In the very chronic cases with residual abscesses in the pleura, peritoneum, or elsewhere in the body, the use of autogenous vaccines has been attended with considerable success, and should be employed as a routine measure.

CLINICAL INDICATIONS FOR TRANSFUSION OF BLOOD.

SORESI (*Medical Record,* May 4, 1912) has performed twenty-five cases of direct transfusion. Very gratifying results were obtained in hemorrhage from all causes, providing the condition that caused the hemorrhage was removed. Blood transfusion should be employed only when the loss has been severe and shock is present. In this series of cases it seemed to the author that transfusion, though successful technically, did not help the patient in one case of hemorrhage from miscarriage, and in another from ulceration of the intestines in typhoid fever —the patient dying while the procedure was going on. In severe cases of postoperative shock transfusion is useful not only after but during operation. Many patients could be saved if the shock which is caused by the anesthetic and hemorrhage during operation could be prevented. In five cases of operation on the biliary tract two patients died: transfusion in one was performed three days after operation—blood serum and saline solution had been used previously; in the other transfusion was performed five hours after operation, and the patient died a few hours later. In the other three transfusion was performed during operation, and the patients made an uneventful recovery, although one had only thirty per cent hemoglobin before the operation; in none did postoperative hemorrhage occur. The author describes an ingenious and somewhat elaborate technique.

CHOLECYSTOSTOMY VS. CHOLECYSTECTOMY.

FRANK (*American Journal of Surgery,* May, 1912) says that, guided by a clinical and operative experience of over twenty years, he is convinced that the most rational treatment of gall-bladder infection, with or without the presence of complicating calculi, is preëminently early incision and drainage, and that cholecystectomy should be resorted to only under the following circumstances and conditions:

Following the infliction of trauma so severe as to necessitate extensive resection of the gall-bladder—*i.e.,* rendering preservation of a functionating portion thereof impracticable.

In extensive gangrene causing practical destruction of the gall-bladder or its ducts, thus rendering future function impossible.

In chronic cholecystitis where the gall-bladder is markedly thickened (shriveled or puckered), or so universally adherent to surrounding structures that it is functionless.

For the elimination of a persistent mucous fistula—*i.e.,* one of six to eight months' duration—following previous operation upon the gall-bladder or its ducts.

In primary carcinoma.

While long incarceration of calculi may produce stricture of the bile ducts, experience has shown that, after removal of the calculi and the institution of adequate drainage, the stricture may finally disappear and the ducts resume their normal condition and function. Even where there exists a fistula between the gall-bladder and the stomach or duodenum, cholecystectomy is contraindicated, unless an impermeable stricture exist in the cystic duct. Likewise, where the gall-bladder has ruptured, or has become perforated from any cause, if its walls be properly sutured and the viscus drained, successful results oftentimes ensue, and in acute empyema of the gall-bladder, the condition for which cholecystectomy has so frequently been recommended and practiced, the operation is rarely, if ever, indicated as a primary procedure.

BLOOD TRANSFUSION FOR HEMORRHAGIC DISEASE OF THE NEW-BORN: THE USE OF THE EXTERNAL JUGULAR VEIN IN INFANTS.

VINCENT (*Boston Medical and Surgical Journal,* April 25, 1912) reports the use of coated glass tubes in hemorrhagic disease of the new-born in order to emphasize the striking result of blood transfusion in this disease and to describe a variation in the technique, which shortens and simplifies the operation in infants. He employed a coated glass tube, attaching to the radial artery of the donor and the external jugular vein of the infant.

In the first case the infant, the third day after birth, passed a stool containing bright-red blood. Similar movements followed. Thirty cubic centimeters of a rabbit's serum was injected subcutaneously, and a little later 2 ounces of a two-per-cent gelatin solution was given by the rectum. The latter was followed shortly by bright-red blood. Paregoric and morphine were also administered. The umbilical stump was clean. The progress was apparently toward a fatal ending. The father served as the donor, and the left radial artery was isolated under cocaine in the usual manner. The external jugular vein was exposed through a ½-inch transverse incision which was made in a fold in the skin about the middle of the neck on the left side. In the collapsed state this vessel, which has thin walls, appeared to be very small, but when the lumen was exposed it proved to be as large as the femoral vein or even larger. A coated glass tube was then tied into the vein. The tube was 12 centimeters long, and the end which was inserted into the vein was about 2½ millimeters in diameter. It was then tied into the vein and into the artery. The blood was allowed to flow for about five minutes, being checked from time to time, but continued until the infant's face regained its normal color. On the following day two large dejections of dark blood were passed. Thirty-six hours after the operation the infant had a normal fecal movement, nor was there any further sign of hemorrhage, the child making a complete recovery.

In all the author has had seven cases illustrating the fact that infants may be transfused with safety and without great difficulty by means of coated glass tubes of proper length and size. Experience in the last four cases has convinced the writer that the external jugular vein is the best vein to use in transfusing infants. The result of the operation in the six cases of hemorrhagic disease of the new-born shows that it can be entirely cured by transfusion.

FRACTURES AT THE ELBOW IN CHILDHOOD.

CAMPBELL (*American Journal of Obstetrics and Diseases of Women and Children,* April, 1912) concludes an article on this subject as follows: The prime consideration in the treatment of fractures of the elbow is not simply a reduction that restores continuity of the fragments, but one that restores functional activity of the joint. It is obvious that reduction here is something more than the reposition of fragments; it implies a coaptation so accurate and a retention so complete that the resulting joint surfaces will permit of normal joint move-

ments. If the fragments be accurately reduced and held in this position, the question of duration of immobilization and the special position in which the limb should be placed are secondary considerations. The fundamental fact must be appreciated that produces ankylosis; it is faulty reduction causing periosteal proliferation that locks the joint. Furthermore, no special position of the arm will obviate the disastrous results of an incomplete reduction.

The general rule to be followed in all cases of fractured elbow is accurate reduction maintained by that splint and that position of the arm which is best suited to the special indications of the individual case.

It is futile and misleading to presume to indicate precise methods of treatment invariably applicable to each variety of fractured elbow. Even in the same type of fracture there are anatomical differences which must be appreciated. Some displacements are corrected by traction, others by direct pressure on the fragment. Each fracture is a special problem with its individual needs and its peculiar indications; while, therefore, no precise rules can be formulated, certain precepts may be followed which will be a safe guide in all cases.

The first step is to find out exactly what is fractured and be satisfied with nothing but anatomical accuracy. A clinical examination under anesthesia is the first requisite, but it is never sufficient; it must be supplemented by an *x*-ray examination. The radiographs should be made and interpreted by a radiographer of experience. The *x*-ray picture without proper interpretation is useless.

The second step is to reduce the fracture by such maneuvers as are efficient in accurately coapting the fragments (flexion, extension, traction, direct pressure, etc.). A maneuver is selected for its efficiency and not according to precedent. Whatever the maneuvers required, care should be taken to avoid any rough manipulation, which only exaggerates periosteal lesions with consequent impairment of function. Firmness and gentleness are always more effective; they accomplish more and damage less.

The third step is to immobilize permanently only when certain that reduction has been obtained, and that the position of the arm and the splint selected are adequate to maintain reduction. This will be evidenced by (*a*) normal conformation of the parts; (*b*) a normal range of flexion and extension; (*c*) the confirmation of a second radiograph. The procedure should be as follows: After reduction has been obtained, and the arm placed in that position which seemingly is most efficient in maintaining reduction, a temporary splint should be applied and a radiograph taken; if the picture confirms the accuracy of reduction and efficiency of immobilization, then the temporary splint should be made permanent. And no permanent immobilization should be attempted until satisfactory evidence has been obtained that the reduction, position of arm, and splint are as perfect as the character of the injury permits.

Lastly in the choice of splints, preference should always be given to plaster of Paris. No other form of splint can be molded so accurately or held so securely—an important consideration where the child's restlessness predisposes to secondary displacement.

CIRCUMCISION IN GIRLS.

MORRIS (*International Journal of Surgery*, May, 1912) states that one of the stigmata of decadence consists in lack of full development of the glans of the clitoris; normal cleavage does not take place between clitoris and prepuce and the prepuce remains adherent. This condition is apt to be found in cases of incomplete development of the mammary glands and of other parts of the sexual apparatus. The adherent prepuce may or may not be of consequence. The majority of women probably never know whether the prepuce is adherent or not. In some cases, however, girls suffer from preputial adhesions in the same way that boys suffer. Girls apparently require circumcision as often as boys do and for the same general reasons.

In any given case in which the physician decides that an irritable prepuce causes local or reflex disturbances in a child, calling for attention, simple separation of the prepuce

from adhesions does not suffice. Readhesion is apt to occur, and usually does occur, sometimes with the effect of causing more disturbance than was originally present. It is best to give the patient a general anesthetic and perform circumcision.

PYLOROPLASTY.

TURNER (*Surgery, Gynecology and Obstetrics,* June, 1912) states that an investigation which he made into the after-history of forty-eight patients operated upon for gastric and duodenal perforation showed that in 38.8 per cent the accident of perforation did not cure the stomach symptoms, and on inquiring more closely into the matter, those not cured nearly always presented a history of more or less chronic stomach trouble. This led the writer to make it a rule, whenever the condition of the patient permitted, to do more than merely close the ulcer in those who had a history of chronic stomach trouble preceding the accident of perforation.

In many cases this necessitates gastroenterostomy, but in some it may be replaced by the simpler and quicker pyloroplasty. This operation enables one to deal with a simple stenosis, to excise a pyloric or duodenal ulcer, or so to close a perforation as to avoid the production of stenosis.

Suitable cases are those with small ulcers at the pylorus, or within an inch on either side and situated in the middle line, and without evidence of any more chronic ulcer on the opposite wall. If the pylorus will not easily lift up into the incision, such an ulcer probably exists, and the case is more suitable for gastroenterostomy than pyloroplasty.

DISEASES OF THE ACCESSORY SINUSES.

BRYAN (*Surgery, Gynecology and Obstetrics,* June, 1912) concludes an article on this subject by stating that in his experience the majority of severe inflammations of the sinuses are accompanied by more or less disturbances in the eye, these disturbances varying in intensity according to the severity of the sinus disease, and the reason they are not more frequently recognized is that they are not looked for until the eye manifestations are self-evident.

The change in the visual fields is a significant symptom of sinus inflammation, and is generally associated with disease in the anterior cavities, but is also frequently found in disease of the posterior sinuses.

Congestion of the papilla is an early sign of disease in the posterior sinuses.

A scotoma and enlargement of the blind spots are so frequently found in posterior sinus inflammation as to make them almost pathognomonic.

There is no one operation that is suitable to all cases. The more conservative methods have relieved many serious cases, and, if the conditions justify it, the intranasal methods should be tried first; failing to bring about relief in this way, then one of the more radical measures will have to be adopted, and the operation that offers the best chance of reaching thoroughly all the diseased parts of the frontal, ethmoidal, and sphenoidal cavities is the Killian, and in maxillary sinus complications a combination of the Killian with the Caldwell-Sue operation.

TONSILLOTOMY OR TONSILLECTOMY.

DANZIGER (*New York Medical Journal,* June 1, 1912) gives the following indications for enucleation of the tonsils in children:

Cases of buried tonsils where the pillars and the plica—that is, the fold of mucous membrane which connects the two pillars below—envelop the tonsils almost entirely. Such tonsils are of no use, as they will not take up bacteria with the ingested food, nor will they be able to empty their crypts in a secondary tonsillitis from nasal or buccal infection.

In cases of small atrophic tonsils which cannot be removed, partly on account of their size, a microscope shows large defects in the epithelium of the crypts, sometimes its complete disappearance.

In cases of suspected tuberculosis of the tonsils, unfortunately, the chronic form of tuberculosis cannot be diagnosticated clini-

cally. Therefore, given an anemic child with tuberculous adenitis of the neck and abnormal tonsils, the tonsils have to be enucleated, as the tubercles are always situated deep in the tonsil underneath the epithelium of the crypts.

In adults, recurrent attacks of circumtonsillar abscess call for enucleation as the only guarantee against future attacks.

Malignant affections are self-evident indications for this operation.

To make the age of the patient an important factor for the choice of operation is not logical, as the microscope shows the existence of the crypts at all ages, with the same production and diapedesis of lymphocytes, even if there is an increase of connective tissue.

That the total enucleation of the tonsils does not always accomplish the desired results has been shown by Finger, who has demonstrated that in quite a number of cases new lymphatic tissue may develop from the lymphatic tissue back of the tongue. As another drawback to the total extirpation of the faucial tonsils, we have to consider its deleterious effect on the voice, especially of singers and public speakers.

TREATMENT OF HEMATURIA.

W. Blake Gibb (*New York Medical Journal,* June 1, 1912) states that the first indication, at least to the patient, is to stop the bleeding. This bleeding may be dangerous, but rarely fatal. Drugs appear to have less effect here than on other visceral hemorrhages. When due to renal calculus, absolute rest, cold acidulous drinks, hot applications, and, if much pain, morphine, from one-eighth to one-quarter grain hypodermically, may be given. Hemorrhage from acute congestions requires hot fomentations, saline laxatives, and diaphoretics; vesical hemorrhage, cold applications to the hypogastrium, with ergot by mouth, or washing out the bladder with astringents, as alum, two grains to the ounce, after the bladder has been emptied. When due to malignancy, operation is needed at once if the disease has not gone too far. Tuberculous disease requires the same care as when it affects other portions of the body. Injuries, if not severe, require rest and cold applications, but if serious, operation must be attempted. Constitutional causes require general treatment, as in hemophilia the calcium salts are necessary. But each case requires careful examination and study, with treatment appropriate to its own peculiar needs

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OPERATIVE TREATMENT OF FRACTURES.

Frankenstein (*Deutsche Zeitschrift für Chiurgie,* Bd. 114, Hefte 1-3) after an experience with open operation in twenty-two cases of fracture of various bones concludes that, especially in the treatment of fracture of the shaft of the tibia, in which fracture it is difficult by conservative methods to replace the fragments or to keep them in position once they have been replaced, the open operation with fixation by means of plates and screws is very highly to be recommended. Also, in fractures of the femur which show no tendency to healing, or which have healed in very bad position, open operation gives very satisfactory results. Fractures of the humerus with marked displacement at points well removed from the joints afford a suitable field for this form of operation. In fractures close to the elbow-joint bone suture will always remain a two-edged sword. So far as the ulna, the olecranon, and the patella are concerned, the author has had better results with suture than with plates and screws.

CARCINOMA OF THE PHARYNX.

Schumacher (*Beiträge zur klinischen Chirurgie,* Bd. 77, Heft 1) states that a review of the experiences with carcinoma of the pharynx at the Zurich clinic over a period of almost thirty years leads to the conclusion that this disease is of a very grave nature. Of 134 cases of oropharyngeal carcinoma 82 had to be declared inoperable immediately upon admission to the hospital, in spite of the fact that the limit of operability is by no means narrow. This large number of inoperable cases is due partly to the neglect of the patients themselves and

partly to negligence on the part of the family physician. In many cases, however, this insidious disease remains for a long time without subjective manifestations, much less seldom than one would infer from its seat. In most of the inoperable cases the patients stated that they first consulted a physician when they noticed a swelling of the glands on the outside of the neck or suffered from severe neuralgic pain. In not a few instances the physician had treated these cases for weeks or months before admission to the clinic under such diagnoses as nasal catarrh, angina or laryngeal catarrh without ever having made an examination of the throat. As a result the author only in exceptional cases found a small, circumscribed cancer. He regrets to say that these conditions have not been bettered during the last decennium.

The early reference of the patient for operation is the first principle in the treatment of pharyngeal carcinoma in order to reduce the immediate operative mortality and enhance permanent operative results. The later results are almost as bad as the original prognosis in the inoperable cases, for 25 cases out of 32 dismissed from the clinic as cured suffered a relapse, mostly during the first year following operation. Only three patients went beyond the five-year period free from recurrence, though one of these after ten years suffered a recurrence. Five patients were free from recurrence when they died of other causes, all within the five-year period.

In the cases of recurrence after a freedom from the disease of about seven months on the average, nothing was really gained because, on account of the disturbances of speech and swallowing, the later condition of the patients was no better than the first. How may better results be obtained? The one way, namely, the turning over of such patients to the surgeon at an early stage of the disease, must always be strongly insisted upon. A second requirement is the performance of a most radical operation. However, on account of the nature of the surrounding tissue, the injunction to carry the excision wide into the healthy tissue is difficult of fulfilment. Nevertheless, the experience of the Zurich clinic, where the tendency has been toward a conservative operation, and where the suffering of the inoperable cases and of those who have had a recurrence has been terrible, should lead one to favor, as advised by Gluck, the most radical operation.

THE TREATMENT OF TRAUMATIC TETANUS.

HUBER (*Beiträge zur klinischen Chirurgie*, Bd. 77, Heft 1) states that in the treatment of traumatic tetanus the region of the wound is cleansed with soap and water, alcohol, and sublimate solution, the wound itself is syringed out with sublimate solution, any particles removed by means of a swab and forceps, and tincture of iodine applied. Torn and necrotic wound borders are removed and pockets split. The wound is not sutured and drainage is provided by packing with iodoform gauze. Old wounds after the outbreak of tetanus, in case they are favorably situated and not too extensive, are excised and the fresh surface seared with the thermocautery. In this way the entrance of air is prevented and small sinuses closed.

In outspoken tetanus, in the hope of saving life in several patients, crushed and gangrenous fingers were amputated; once a hand and at another time an arm was sacrificed. After the wound is cared for the case is treated symptomatically. If possible the patient is put into a quiet room and provided with an extra nurse. When the taking of food is seriously interfered with, feeding is carried out by means of a tube, through the nose if necessary. Patients that can swallow are given fluid food, and those who cannot swallow are fed by enemata. If there is great thirst in those who cannot swallow, fluid is supplied by saline injections. When there is severe dyspnea, oxygen inhalations are given; for the heart caffeine and camphor are used, and, in order to reduce the high reflexes and produce sleep, chloral is given, and for pain morphine. To these measures is added antitetanic serum. This is given subcutaneously, intramuscularly, intravenously, and subdurally by means of lumbar puncture. For

subcutaneous injection the outer surface of the thigh, the breast, or the upper arm is selected; for intramuscular injection the thigh; for intravenous injection the median cubital vein; and for intradural injection the space between the third and the fourth lumbar vertebræ. It is only from early administration that one can expect good results. This is not always done with the desired effect, for in one of the author's cases serum was given immediately upon the onset of symptoms, yet the patient died. In another case it was given six hours after the onset, yet death resulted. In other cases it was given eight, ten, twelve, eighteen and twenty-four hours respectively after onset, with fatal result in every case. Among seventeen cases treated within twenty-four hours of the onset in not one did cure occur. Of twenty-one cases which received the injection later than twenty-four hours after the onset seven recovered and fourteen died. However, in all but three of these cured cases the incubation period was twelve days or more, which in itself is of favorable prognostic significance. In two cases with five and seven-day incubation periods respectively the favorable result can hardly be ascribed to the serum, since these were from the first mild cases and did not receive the serum until four to five days after the onset. Such cases get well without serum.

The experience at the Zurich clinic has been that in spite of the use of serum the mortality from tetanus has not been diminished. No case of outspoken tetanus has been lessened in severity by the use of antitoxin. Good results are, however, to be expected from the use of antitoxin as a prophylactic.

FRACTURE OF THE LOWER JAW AND ITS TREATMENT.

Egger (*Beiträge zur klinischen Chirurgie,* Bd. 77, Heft 1) bases upon the experience with 76 cases of fracture of the lower jaw the following principles: Fracture of the lower jaw is typically a weak-point fracture occurring at a place where the resistance is weak, due to anatomical, physiological, or pathological characteristics. The active agent in the displacement of the fragments is muscular contraction, the force of the trauma and the course of the fracture line being determining factors. Suture of the bone is indicated only in toothless jaws. Splints serve best in jaws which have teeth and are the least annoying to the patient. The splints should fit firmly and should be made of sterilizable material.

OPERATION IN SUPPURATIVE MENINGITIS.

Kostlivy (*Archiv für klinische Chirurgie,* Bd. 79, Heft 3) reports three cases of suppurative meningitis operated upon with favorable results in two cases, and observes that the surgeon should not hesitate to perform a radical operation in any case so soon as the diagnosis of an intracranial suppurative process is manifest. It is only by early operation in these cases that the conviction can be forced upon the internist that these cases belong as much to the surgeon as does suppurative peritonitis. By operation the mortality in the most severe cases of peritonitis can be reduced 50 per cent, not to mention the number of patients in whom early operation will protect against these grave complications. Perhaps the same hope will be realized in cases of suppurative meningitis.

TREATMENT OF FRACTURES OF THE SKULL.

Schaack (*Archiv für klinische Chirurgie,* Bd. 79, Heft 3) of Zeidler's clinic at the Obuchow Hospital for Men in St. Petersburg reports from that clinic upon 530 fractures of the skull covering the years 1900 to 1910. Of these 364 were of the convexity and 166 of the base. The number of skull fractures constituted 9.7 per cent of all fractures treated during the same period. This percentage is higher than in most other series, a fact accounted for by the low state of civilization amongst the population from which this clinic is recruited and the consequently large number of persons who are assaulted by blows upon the head; also by the wide-spread drink habit—144 such fractures were suffered by

men in a state of drunkenness. Of the 166 fractures at the base the mortality was 102. The symptoms were in 41 complete unconsciousness; in 125 disturbance of consciousness; in 101 bleeding from the ear; in 75 bleeding from the nose; in 14 bleeding from the mouth; loss of cerebrospinal fluid occurred in 11 cases; the facial nerve was paralyzed in 45 cases; vomiting in 28; paralysis in 10; spasms in 12; speech disturbance and aphasia in 12. The treatment in fracture of the base consisted of complete rest in bed, ice to the head, and, when necessary, stimulants or narcotics. In case of bleeding from the ear or nose tamponade and irrigation were avoided, as both are conducive to infection in the deeper tissues with resulting meningitis. Operation was done in only one case. The patient died five days later. Of the 64 cases cured, in 15 persisted paresis, in eight running ear, and in three disturbances of vision. Of the 102 fatal cases 56 were moribund on admission; 28 died of suppurative meningitis, and 18 on account of the severity of the injury. It is thus observed that in all who survive the first one or two days meningitis is the commonest cause of death. Treatment extended over a period of several weeks; only a few were discharged under two weeks; most cases were treated for three to four weeks, and some as high as a month.

Of the 364 cases of fracture of the convexity, 85 died. The symptoms observed were in 95 cases unconsciousness, in 35 vomiting, in 49 paralysis or paresis, in 14 convulsions, and in 13 disturbances of speech or aphasia. The exact diagnosis of the character and extent of the fracture was made in most cases only after enlarging the scalp wound by operation. There were treated by operation 206 cases, of which 52 died. The dura was injured in 93 cases, of which 45 died. Injury of the dura is to be considered as a very dangerous complication, which renders the prognosis much more grave. If the brain substance is injured also, the prognosis is still worse; out of 53 such cases 30 were fatal, usually as a result of suppurative meningitis. The operative treatment consisted chiefly in enlarging the wound, caring for the injured bone in the usual way by removing dirt and splinters of bone, smoothing sharp edges, and in a few cases forming an osteoplastic flap.

TREATMENT OF LEG ULCERS.

LINDEMANN (*Deutsche Zeitschrift für Chirurgie,* Bd. 114, Hefte 5 and 6) reports his experience in the treatment of leg ulcers, and says that in case of small ulcers the best treatment is the application of an ointment with bandage after curetting the surface; in moderately bad cases skin transplantation after the method of Thiersch. If there is marked varicosity of the veins they should be removed through a number of small incisions, being careful to protect the skin. Incision of the ulcer or of the entire leg region after the method of Rindfleisch-Friedel is not in any case to be recommended. For the very severe cases of leg ulcer with changes in the bone, amputation is to be seriously considered, for by this means those who have been for a long time totally disabled may be restored at least to partial usefulness. Prophylaxis is very important. The circulation should be kept good in the legs by means of foot baths and massage. Anything which tends to the production of an ulcer must be avoided. Edema and varicosity of the legs must be combated by means of bandages, and the smallest injury must be carefully treated so as to bring about healing as quickly as possible.

EFFECT OF THE SUN'S RAYS ON TUBERCULAR SEQUESTRA.

FRANZONI (*Deutsche Zeitschrift für Chirurgie,* Bd. 114, Heft 4) says that in treating tubercular sequestra in the usual expectant way with a view to their separating by suppuration or being resorbed, meanwhile increasing the resistance of the organism by injections of iodine or other similar means, months at least are required to bring about the desired results. The process is especially slow because the tubercular tissues have very little tendency to healing and because no such great quantities of pus are formed as to facilitate the separation of the sequestrum. By operation the seques-

trum can be quickly removed, but, even if it is already well separated, the results after removal are not so good because of the lack of vitality of the remaining tissue; if it is not well separated there is always danger of removing more tissue than is necessary.

The treatment by sunlight, as in other expectant methods, has the relative disadvantage of requiring a long time, but this is offset by the favorable influence of the sunlight upon the general condition, also upon the vitality of the tissues in the region of the lesion. When the sequestrum has been eliminated under exposure to sunlight, the local process is also cured and the fistula closed. In this respect also the elimination of the sequestrum under the influence of sunlight differs from its removal by surgical measures. Also, in getting rid of the sequestrum under sunlight no more tissue is sacrificed than is absolutely necessary. Therefore, in all cases of sequestrum formation with fistula, treatment by sunlight, in spite of the long time required, affords the most ideal means thus far known. The influence of the sun's rays depends in part upon its bactericidal properties and in part upon its power over toxins.

POSTOPERATIVE PAROTITIS.

OEHLER (*Beiträge zur klinischen Chirurgie,* Bd. 77, Heft 2) says that in his experience postoperative parotitis was not an important complication, but rather simply an incidental phenomenon. The course was almost without febrile disturbance. It was almost in every case secondary to operations upon the stomach, intestines, or gall passages. In only one case did the process become septic. In all cases it came on in those suffering from great prostration, as when the strength and nutrition were much reduced by starvation, obstruction of the bowels, chronic icterus, or cancer. The occurrence of the parotitis may be due to the fact that the operation was not entirely aseptic and that it was of hematogenous origin. It may be also that the fecal vomiting which accompanies many of these cases might at times be the cause of direct infection of the parotid gland. By way of prevention of the condition it is advised that earlier operation be carried out and a larger incision be used in cases which are apt to develop postoperative parotitis.

PERFORATING WOUNDS OF THE LARYNX.

BOLJARSKI (*Beiträge zur klinischen Chirurgie,* Bd. 77, Heft 2) states that in the Obuchow Hospital for Men in St. Petersburg during the decade from 1900 to 1910, 220 cases of wounds of the neck were observed, and of these 25 were penetrating wounds of the larynx. In this series 21 were inflicted with suicidal intent. In 9 cases the cricoid cartilage was penetrated, in 7 the thyroid, in 7 the thyrohyoid ligament, and in 2 the conical ligament. The size of the laryngeal wound bore no definite relation to the skin wound; at times the skin wound was very large, while the wound in the larynx was small, and at other times the opposite was the case. The wound in the larynx was at times isolated, while at others it was associated with injuries to the vessels and nerves. As a rule there is not much separation of the lips of the wound unless the larynx is completely severed.

The chief dangers of wounds of the larynx are asphyxia and hemorrhage. Later complications are tracheobronchitis, bronchitis, pneumonia, pleurisy, abscess and edema of the larynx.

The first duty of the surgeon in these cases is to control the hemorrhage and to counteract the tendency to asphyxia. The bleeding vessels are to be ligated, the blood aspirated from the respiratory tract, and loose pieces of cartilage removed. The best method of dealing with the laryngeal wound is to suture it and the overlying tissues in layers. This affords the best means of securing healing and complete restoration of function. In nine out of eleven cases thus treated healing occurred by first intention. Prior to suture a prophylactic vertical tracheotomy must be performed and a cannula introduced. Drainage is introduced at the angles of the wound. The dressing is applied in such a way as to hold the head firmly in a flexed position. General anes-

thesia is very seldom required. Operation is done either under local anesthesia or without any anesthesia, as the state of the patient's consciousness is often very low.

JUXTA-EPIPHYSEAL FRACTURE OF THE UPPER END OF THE HUMERUS.

ALBEE (*Medical Record*, May 4, 1912) notes that epiphyseal disjunction of the upper end of the humerus is an accident of youth, and occurs from birth to the twentieth year. It is generally conceded to be the most common of epiphyseal fractures. The upper epiphysis of the humerus comprises the head and both of the tuberosities. It originates in three ossification centers, the head and the two tuberosities, which unite to form the epiphysis at an indefinite period. Union with the shaft takes place at about twenty. Diagnosis is usually made by palpation, which reveals the normal convexity of the shoulder, due to the presence of the humeral head in the glenoid cavity, thus distinguishing it from a dislocation. The upper end of the lower fragment, somewhat rounded in its contour, can usually be felt under the coracoid process. The crepitus is of a softer quality than in cases of ordinary fractures—*i.e.*, cartilaginous. Localized pain and swelling are present. A wrinkling of the skin, caused by the hooking of the upper end of the lower fragment into the subcutaneous tissues, is very characteristic. Abduction is especially limited and muscular spasm interferes with all motions. A high injury near the joint in a young individual, showing displacement forward and inward of the shaft, is very suggestive of epiphyseal disjunction.

Numerous cases are recorded. The fracture is exposed by a large U-shaped incision with its apex about 1½ inches above the insertion of the deltoid muscle. The skin, fasciæ, and deltoid muscle are turned upward *en masse*. They are then brought in good apposition by strongly elevating the arm forward and slightly outward, so as to come into alignment with the upper fragment, and firmly wired with silver wire. If the arm be brought to the side this wire will not hold. Therefore it is important to dress the arm in abduction. The shoulder and arm are incorporated with the elbow flexed to a right angle in a plaster-of-Paris spica from the wrist to the umbilicus. The best technique for applying this cast to a patient under an anesthetic is to have the patient's head and shoulders pulled beyond the head of the operating table and that part of the body supported by an orderly sitting on a stool, with his foot on the round of the stool and his knee in the interscapular space. The thorax is best padded with complete sheets of cotton wadding. Traction is produced by an assistant pulling upward as the cast is applied. If the patient is not anesthetized for any reason, he can be seated in upright position on a stool. Two old people not reported at this time have been treated in this way with very satisfactory results. The convalescence of the above case was uneventful. The patient was kept in bed one week. During this time the weight of the arm and the cast was taken from his chest by suspending the same to a pole placed longitudinally over the bed. This suspension, however, has not been necessary in any of the succeeding cases. The cast was removed at the end of three weeks, and massage and passive motion were instituted. At the end of nine weeks the motions were practically normal.

In view of his reported cases and clinical observations of a considerable added number, the author concluded that this posture relaxes the prehensile or most of the strongest muscles of the shoulder and arm, namely, the pectoralis major, the biceps, the supraspinatus, the coracobrachialis, the strongest part of the deltoid, and the subscapularis muscles.

The lower fragment is controlled accurately and held very securely.

As in the case of a subtrochanteric fracture of the femur the capital fragment cannot be controlled on account of its shortness and the pull of the trochanteric muscles, therefore the lower fragment is placed in alignment with it in strong flexion and abduction. This treatment of the femur has for a long time been accepted, the same mechanical reasons holding here—that is,

the long fragment of the humerus is placed in alignment with the position the short one mechanically takes on account of the pull of the tuberosity muscles.

If limitation of motion at the shoulder occurs this relation of humerus to scapula is the one of selection, both because it is a position of usefulness and because it permits the scapulothoracic muscles to functionate most efficiently.

From the experience of Drs. Orr, Berry, Hawley, and the writer it is a more comfortable position than the classical position of fixation to the side of the thorax.

The distal fragments can be controlled and the overriding prevented much better than in any other position.

The arm can be held and traction made very easily while the plaster-of-Paris cast is being applied.

REVIEWS.

A Text-book of Pathology for Students of Medicine. By J. George Adami, M.A., M.D., F.R.S., and John McCrae, M.D., M.R.C.P. Illustrated. Lea & Febiger, Philadelphia, 1912.

Many of the profession are already familiar with the exhaustive two-volume work upon Pathology which has appeared during the last few years from the pen of Dr. Adami. At the request of the publishers Dr. Adami and his colleague have now prepared a text-book in one volume which is supposed to contain the gist of the subject and to provide a manual for practitioners and students which is complete and yet not so exhaustive as the larger volumes. The authors bring to the preparation of the present work, which covers a little over seven hundred pages, wide experience in investigation and in authorship, and in the study of the literature with which their subject deals. We have no doubt whatever that the present volume will at once attain a popular place amongst the text-books of the country. Unlike some books it is not over-illustrated, but nevertheless there are no less than three hundred and six engravings and eleven elaborately colored plates. Many of these engravings are taken from other sources than the author's own material, but on the other hand, a great many of them are original and all of them are excellent. For an author to write a successful two-volume work and then to be equally successful in condensing it into a one-volume work is, to say the least, unusual and surely indicates much literary ability.

Digestion and Metabolism. The Physiological and Pathological Chemistry of Nutrition. For Students and Physicians. By Alonzo Englebert Taylor, M.D. Lea & Febiger, Philadelphia, 1912.

Within the last few years a number of books dealing with diet and with the processes of nutrition have been prepared by competent authors, of which perhaps the most competent has been Lusk.

This new candidate for professional favor is written by one who for a number of years has been constantly engaged in studying physiological chemistry and the problems of metabolism.

Although at the present time many metabolic problems are by no means solved, nevertheless the author has been distinctly successful in presenting the latest views which are generally accepted and in studying the results of experiments made both *in vitro* and *in vivo*. The book does not strike us as being one which is particularly suited to the student as a text-book, but rather for the professional graduate who wishes to brush up upon this important subject, or for the author's fellow-teachers in this department of medical science.

What to Do in Cases of Poisoning. By William Murrell, M.D., F.R.C.P. Eleventh Edition. Paul B. Hoeber, 69 East St., New York. Price $1.00.

Earlier editions of this little book have become familiar to many medical men in this country and England. The author claims in his preface to have thoroughly revised his text and to have added many

new poisons, including, to use his words, "the deadly veronal." If his opinion in regard to the toxic properties of other substances is as distorted as it is in regard to this substance one would not expect to find very safe expressions of opinion elsewhere in the book, but as a matter of fact the rest of the text is excellent, though very condensed.

ESSAYS ON GENITOURINARY SUBJECTS. By J. Bayard Clark, M.D. New York: William Wood & Company, 1912.

This little work, well described by its title, deals in a general way with cystoscopic diagnosis, gonococcic infections and the physician's responsibility, some necessary principles in the diagnosis of surgical conditions of the upper urinary tract, the value of some urethral and other germicides, newer methods in genitourinary surgery and kindred topics.

It is written in admirable style and discusses the various subjects with a sound common sense not always to be found in the writings of a specialist. The book can be read in an hour, and this time will have been spent serviceably even by the expert.

THE CARE OF THE SKIN AND HAIR. By William Allen Pusey, A.M., M.D. D. Appleton & Company, New York and London.

This work, dedicated to the author's wife, is designed for public instruction in the care of the skin and hair rather than for the use of the physician. Viewed from this standpoint it is worthy of high praise. The author states that the consumption of soap per capita is as good an index as we have of the state of civilization of a community. The author prefaces his text by clearly stating that there is no intention of catering to the pernicious habit of self-medication, and that his work is in no sense a book on the self-treatment of skin diseases—rather it is a means by which they may be avoided.

GONOCOCCAL INFECTIONS. By C. E. Pollock, Royal Army Medical Corps, and Major L. W. Harrison, Royal Army Medical Corps. Henry Frowde, Oxford University Press, 1912.

In this small book of 208 pages is given an excellent résumé of the present knowledge of the gonococcus and its evil effects upon the human. To those familiar with the literature of the subject the work will bring little that is new. To those who are busy in other departments of medicine it affords an excellent way of becoming familiar with recent knowledge. It is unfortunate that the reviewer cannot substitute for the word "knowledge" advances. It remains true that for gonococcic infection either local or general modern therapeutics have little new to offer aside from the vaccines and sera, which are still *sub judice*.

CHILDREN AND THEIR CARE AND MANAGEMENT. By E. M. Brockbank, M.D., F.R.C.P. Oxford University Press, New York, 1912. Price $1.50.

This is one of the best books dealing with this subject with which we have come in contact, clear in print and in description, using simple terms, easily understood. It can be placed in the hands of the nurse or parent with advantage. As we have said on previous occasions, there is no more difficult task for the medical man than to prepare a book dealing with medical topics for use by the laity. Either the text is hopelessly primitive in its character or hopelessly technical. Both of these difficulties have been avoided in the present endeavor.

THE CARE OF THE SKIN IN HEALTH. By W. Allan Jamieson, M.D., F.R.C.P. The Oxford University Press, New York, 1912. Price $1.00.

The author has provided a small book of one hundred and nine pages, which could easily have been condensed into half of this space, dealing with a subject which is of more interest to the "social butterfly" than to the medical man, except in so far as the "social butterfly" may see fit to consult him for the preservation of the exposed portions of her skin. When on the title page we read that Dr. Jamieson is Knight of Grace of St. John of Jerusalem, Surgeon the King's Body Guard for Scotland, Royal Company of Archers, and Consulting Physician for the Diseases of the Skin to the Edinburgh Royal Infirmary, we cannot help thinking of the old adage, "The mountain which has been in labor has brought forth a mouse."

CORRESPONDENCE.

LONDON LETTER.

BY J. CHARLTON BRISCOE, M.D.

The month of August is so much given up to holiday-making that there is little of interest in the medical world to chronicle. The last event of importance was the annual meeting of the British Medical Association at Liverpool, and the next thing to look forward to is the meeting of the British Association early next month. The interest at this meeting is usually more scientific than medical, but this year we are promised some startling discussions on the origin of life. The President will devote his inaugural address to this subject, and the zoölogists and botanists will announce their latest discoveries on this question and will combine in a discussion.

The International Eugenics Congress recently held at London University has accomplished at least one of its objects. It has drawn public attention to the principles of eugenics and this will serve to educate public opinion as to the way the application of these principles will affect the present social conditions in all countries. This will in time probably lead to their embodiment in practical politics, and indeed the Bill for the control of the feeble-minded now before Parliament is a step in this direction. Dr. Alfred Mjoen of Norway read a paper on "The Effects of Alcohol on the Germ-Plasm." He stated that for four years there had been an agitation by medical men in Norway to compel the classification of liquors in three sections, according to their percentage of alcohol. The state had recently passed legislation to this effect and he believed that with this system of classification under the control of the state the consumption of liquors would undergo a gradual change to lighter and more harmless drinks. In his closing address Major Leonard Darwin, the President, impressed upon his hearers the necessity of keeping the meaning of the word "eugenics" within well-defined but not too rigid limits. There would always be many philanthropists nobly endeavoring to fight the evils of social life, and they would naturally look to the eugenists for help. As men they must give help freely, but as eugenists they must be careful lest their own particular objects became obscured. By reminding themselves of their special sphere of action they would be enabled to continue at a task where no present glory was to be won and where no definite results even might be visible in their lifetime.

One of the results of the Congress is the establishment of a permanent International Eugenics Committee. This Committee will preserve the international coöperation already established and will make any necessary arrangements as to general policy. The next Congress will be held in three years' time. The choice of place seems to lie between San Francisco and Paris.

Dr. Tredgold, who was medical expert to the Royal Commission on the Feeble-minded, has been expressing very gloomy views on the declining vitality of the race. He pointed out that the progressive fall in the death rate is due to preventive medicine and cannot therefore be taken as a test of vitality. During the past two generations the average rate of illness has been steadily increasing; this point is clearly demonstrated in the sickness statistics of the Friendly Societies, which show in the case of one society a rise of from 2.92 days of sickness per member in 1900 to 3.34 in 1911. Preventive medicine has also caused a decline in the rate of infant mortality, but the proportion of deaths due to innate constitutional defects is as high to-day as it was thirty-five years ago. Another alarming sign of deterioration is the increase in the number of the insane; in the last fifty years the figures have gone up from 35,000 to 133,000. Dr. Tredgold thinks that much of the present social and political unrest is an expression of increasing physical and mental incapacity and of a waning grit and independence.

The Hospital Sunday Fund has just issued its awards for the year 1912. The total

reached by the Fund this year is nearly £58,000 and this sum will be distributed among hospitals, dispensaries, and nursing associations, about 250 in number. Attention was drawn to the fact that the average cost for out-patient attendance has risen very considerably in the last few years, and a resolution was passed recommending that the question of allowance for out-patients be again investigated before next year's distribution. This makes more trouble for hospital secretaries.

The position as regards the administration of medical benefits under the National Insurance Act may be said to be *in statu quo*. Mr. Lloyd-George has again asked the doctors to wait and see what the actual regulations are. He says that they will find that night visits are put in a different category from day attendances, and that they will be safeguarded from interference with their medical duties by any body of laymen. He did not, however, hold out much hope of an increased rate of remuneration. Meanwhile the medical members of the Advisory Committee nominated by the British Association have all sent in their resignations, but fourteen members who were nominated by the Government have refused to send in their resignations as they consider, for the present, it is their duty to remain members of the Committee.

Dr. George Ernest Morrison has been appointed Political Adviser to the President of the Chinese Republic. Born in Australia, he has traveled extensively in the East, and he made his name by the despatches he sent as special correspondent of the *Times*. In these despatches he showed so much accuracy of information and wisdom in forecasting events that he has had great influence on current opinion. China is to be congratulated on securing the services of an adviser of such conspicuous ability combined with a comprehensive knowledge of the country's affairs.

Another case of plague has been reported at Liverpool. The patient, a boy of about seven years, was operated on for appendicitis and a gland removed from the groin was found to contain plague bacilli. As the boy resided in a neighborhood inhabited by dock laborers the infection was probably brought from some ship. An infected rat was discovered in the street where the boy's relatives lived, and as there was evidence of flea bites on his body the infection was probably conveyed by fleas. The patient has been treated with serum and is making a good recovery.

The death of Miss Octavia Hill has left a big gap in the ranks of those who are endeavoring to improve the housing conditions of the poor. More than fifty years ago, while still a young girl, she started her crusade against the slums of London. At that time very few people of her own class knew or cared anything about the housing conditions of the very poor. Miss Hill started in a modest way by securing here and there blocks of slum dwellings which she put into good repair and then managed herself, collecting the rents and encouraging the inhabitants to keep their rooms in a decent state of cleanliness. The many experiments which have been made in the erection of model dwellings were mainly inspired in their inception by the success which attended her efforts, and towards the end of her life she had the satisfaction of seeing an immense improvement in the conditions of slum dwellers. She was a great believer in the people helping themselves, and saving for times of distress and not relying on charity.

The miserable weather of the past few weeks has done an enormous amount of damage to the crops. Many of the fields are so beaten down that cutting will be a matter of difficulty. This August has succeeded in emulating last August in the matter of records, only in the opposite direction, for the amount of sunshine recorded has been abnormally low. The wail of the seaside landlady is loud, but the unfortunate holiday maker is also much to be pitied, for seaside lodgings do not usually provide the comforts necessary to face the rigors of an Arctic summer.